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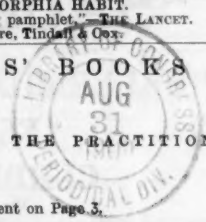

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An Address
ON
THE PRESENT STATE OF OUR KNOWLEDGE OF THE BACTERIOLOGY AND PATHOLOGICAL ANATOMY OF LEPROSY.

Delivered at the Second International Scientific Congress on Leprosy (to open the Discussion on the Pathological Anatomy of Leprosy) held at Bergen, August 16th to 19th, 1909,

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MR. PRESIDENT AND GENTLEMEN,—When the Committee of Organisation of the Second International Scientific Congress on Leprosy invited me to open the discussion on the Pathological Anatomy of Leprosy I felt that a great honour had been conferred not only on myself but also on the London School of Tropical Medicine, whose delegate I am. At the same time I could not but feel the responsibility of the position, and would greatly have preferred that the task had fallen to someone of wider experience. At the first International Scientific Congress on Leprosy, held in Berlin in 1897, this duty was performed by the late Rudolf Virchow. The loss the world has sustained by his death cannot be over-estimated; but his influence and his teaching are a permanent heritage. Only to the few has it been given to leave their indelible imprint on the science of medicine for all time; to none more than to him. Since the first Congress in 1897 almost all the advances which have been made with regard to leprosy have been the result of a wider knowledge of the pathology and bacteriology of the disease. Although this advance has not been rapid, nor associated with any brilliant or epoch-marking discovery, it has been none the less sure. In the short time at my disposal it will be my endeavour to point out wherein this advance has taken place, to state briefly the present position of our knowledge of the bacteriology and pathology of the disease, to show wherein that knowledge is defective, and to suggest certain questions for discussion.

THE CAUSE OF THE DISEASE: THE LEPRA BACILLUS.

The researches of the last 12 years, since the first Lepra Congress, have only more firmly established the lepra bacillus of Hansen as the specific cause of leprosy; although up to the present time all the postulates of Koch have not been fulfilled by it, yet the fact that it occurs universally in leprosy in all its forms, that all the symptoms of leprosy can be explained as the direct or indirect result of a pathological process produced by it, that it is absent in all other morbid entities, and that it possesses characteristics which differentiate it from all other micro-organisms, render its position as the leprosy-exciter as unassailable as that of the plasmodium of malaria or the spirillum of relapsing fever.

Morphology.—The knowledge of the morphology of the bacillus has been advanced of late by the introduction of special staining methods to demonstrate the young homogeneous bacilli, the old, granular and dead bacilli, the resistant fat in the bacilli, and the fat in the glœa which holds them together. By these methods it has been shown that a large proportion of the bacilli in the tissue are dead, that even in young newly-formed lepromata dead bacilli occur, while in older lesions the majority of the bacilli are dead. By Ziehl's method, using 20 per cent. nitric acid and counter-staining with polychrome blue, young bacilli are stained red, older bacilli violet, and granular bacilli blue. Emile-Weil[1] suggested the employment of the Baumgarten method, namely, staining with aniline violet in the cold, and using nitric alcohol (1 in 10) to differentiate. By this means the bacillus does not lose its stain. Unna,[2] for the double staining of normal and dead bacilli in the tissues, suggested the employment of Victoria blue, 1 per cent. nitric acid, and saffranin; this stains the normal bacilli blue and the dead bacilli yellow. The differentiation by means of staining methods of the lepra bacillus from the tubercle bacillus is uncertain, though various methods have been suggested, based on the fact that the lepra bacilli, when stained by Ziehl's method, more readily lose their stain when treated with nitric acid than the tubercle bacilli, and we are compelled to fall back on other characteristics to distinguish them.

Classification.—The classification of the lepra bacillus is a matter for discussion at the present time. Until recently the bacillus was believed to belong to the class of schizomycetes, but the finding of a cladothrix arrangement by Barranikow and others,[3] and of branching forms like actinomyces, have rendered it probable that it belongs to the class of the streptotricheæ. In the bacilli small spheres have been noticed, and have been described as "spores," but the evidence that they are true spores is not conclusive.

Cultivation.—In spite of the numerous attempts which have been made during the last decade to cultivate the bacillus, no medium has been discovered on which it will invariably grow. From time to time observers have announced that they have succeeded in cultivating it, but further experiments by themselves or others have usually failed to establish their claim, and showed that either the technique was defective, that the cultivations had become contaminated, or that some other acid-fast micro-organism, like the tubercle bacillus, had been grown. Of the many attempts to cultivate the lepra bacillus claimed to have been successful, but which have not been definitely established, three may be mentioned. 1. Carrasquilla[4] reported that he had cultivated the lepra bacillus on human blood serum and on beef bouillon. 2. Van Houtum[5] recorded positive results on broth prepared with fish and beef, and rendered alkaline with leprous material. He also claimed that the bacilli, when mixed with diluted human serum, showed the Pfeiffer-Bordet reaction with destruction of bacilli, which was more marked with leprous serum than with ordinary serum. 3. Emile-Weil,[6] working in the laboratory of the St. Louis Hospital, Paris, under M. Sabouraud, claimed to have cultivated lepra bacilli from recent leprous nodules on several peptone-glucose and peptone-agar media containing pleuritic serum. His apparently most successful experiment was by inoculating leprous material in a hen's egg as follows. The juice from a recent nodule was taken up by a pipette. This was introduced into the yelk after piercing the broad end of the egg. The small hole was afterwards closed up by a collodion scab and the egg incubated at 37°. The yelk was then turned out on a Petri dish, and in it a small yellowish nodule about the size of a hemp seed was observed, which proved to be a colony of lepra bacilli. This result was obtained twice out of 26 eggs inoculated.

Up to the present not only has no satisfactory medium been found on which the lepra bacillus will grow, but it has not been proved that the bacillus is present and can lead a saprophytic existence on decayed organic matter, such as decayed fish, meat, rice, or in the soil. If the bacillus could lead such a saprophytic existence there should be no great difficulty in finding a suitable medium for its growth. This fact alone is sufficient to negative the theory that the disease may result from the eating of decayed fish, decayed pork, and the like, and until either the lepra bacillus has been found to exist in decayed fish and to be capable of being recognised there, the fish theory of the etiology of leprosy cannot be regarded as other than a hypothesis which is unsupported by scientific fact.

Inoculation.—Up to the present time no lower animal has been found which is susceptible to leprosy. Numerous inoculation experiments have been made on different animals, chiefly monkeys, rabbits, and guinea-pigs, the leprous material being inoculated under the skin, in the peritoneal cavity, in the anterior chamber of the eye, &c., but invariably with negative results. Nicolle of Tunis[7] excised a nodule from a leper. This was broken down, diluted with sterile water, and inoculated on the temples of

[1] Lepra, 1906, vol. vi., p. 33.
[2] Monatschrift für Praktischen Dermatologie, 1908, Band xlvi., p. 195.
[3] Charkow: Transactions of the Dermatological Society, 1900.
[4] Communication to the National Academy of Medicine, Bagota, Columbia, 1899.
[5] Journal of Pathology and Bacteriology, 1902, p. 260.
[6] Annales de l'Institut Pasteur, 1905, p. 793.
[7] Lepra, 1905, vol. v., p. 160.

a monkey after scarification, also on the conjunctiva, nasal mucosa, and on the left ear under the skin. A Macacus ape was similarly inoculated. Four days afterwards all traces of the inoculations had gone and an examination of the nasal mucus showed no bacilli. A month later a small subcutaneous nodule appeared in front of the ear and a few days afterwards one or two small, indurated, red nodules in the auricle. These remained unaltered for some time. A histological examination showed an accumulation of lymphocytes but no giant cells or caseation. The bacilli in the tissue were few and were almost all in the cells. There was no definite "lepra cells."

Presence of lepra bacillus in insects.—So far the microbe has not been found in mosquitoes, nor in other insects suspected of disseminating the disease, though in this connexion Goodhue[8] claims to have found the bacillus in the gnat and the bed-bug (*Cimex lectularis*). This observation, so far as I am aware, has not been corroborated by others.

Serology.—An immunising serum has not yet been obtained for leprosy, and all attempts to extract from lepromata a substance which would produce in leprous patients a reaction analogous to that produced by tuberculin in tuberculous patients have been unsuccessful. It is a well-known fact that leprous patients may react to the old tuberculin, but this reaction is of comparatively little significance, as individuals may react to the old tuberculin without being tuberculous. Leprous patients also react to the products of other micro-organisms. The Carrasquilla serum method has not fulfilled its promise, and the results from it have been so disappointing that it has been practically abandoned. The method was as follows. Blood was obtained from leper cases by venesection performed on the patients at the febrile period when the blood was at its maximum toxicity. From this a leprous serum was separated and injected a few hours after collection into a horse, three injections being given at intervals of ten days. From this horse after ten days a serum was obtained, which was injected into the patient. Tidswell[9] gave a careful account of his experience with the serum, and reported unfavourably regarding it. He found that with injections of 5 cubic centimetres in the human subject, injected every three to five days for a period of nine months, no marked reaction was produced, and no rigor, fever, joint pains, or erythema occurred. At first the patients said they felt better, but, as is usually the case with a new remedy, when they got accustomed to it, they became as listless as before. No change in the nodules and macules were detected; anæsthesia persisted, alopecia and defects of sight were not improved, and the disease did not seem to be ameliorated or arrested. After nine months' trial the patients declined to submit to further treatment with the serum. Rost, in 1904,[10] claimed to have succeeded in cultivating the lepra bacillus in an achloretic medium, and to have produced from it a "leprolin," made on the same principles as Koch's tuberculin. The bacillus which was cultivated, however, did not prove to be the lepra bacillus, and the reaction produced by the so-called "leprolin" when injected was possibly due to "filtered toxins from the contaminated media" (Semple). In the same year Deycke[11] succeeded in cultivating a streptothrix from cases of nodular leprosy. This streptothrix he did not consider to be the lepra bacillus, but from it a well-defined neutral fat was extracted by ether, to which the name "nastin" was given. This, when combined with benzoyl chloride and injected, produced a bacteriolysis, and was said to cause an arrest of the leprous process.

MODE OF INVASION.

The path of entrance of the lepra bacillus is a point of importance with regard to the prophylaxis of the disease, but it is still *sub judice*. It would seem most probable that the bacillus may gain entrance in various ways. Probably the most common mode of invasion is *viâ* the *nasal mucosa and upper respiratory tract*. This view is corroborated by the frequency with which nasal symptoms form one of the earliest manifestations of the disease, such as rhinitis, chronic coryza, ozæna, epistaxis, lepromata in the nasal mucosa, and the presence of lepra bacilli in the nasal discharge. Kolle[12] examined the nasal mucosa of 137 lepers for bacilli at Robben Island. He found bacilli in the mucus in all the 45 nodular cases. In 30 cases of mixed leprosy bacilli were found in the nasal mucus in 22. In 60 anæsthetic cases he only found the bacillus in the nose in 21. In 30 cases no bacilli were found in the nasal mucosa, but in two of these they were found in the sputum. The lepra bacilli may also gain entrance *viâ the mouth* and infect the tonsils, and they have been found in the sputum. With regard to the *alimentary tract* being a path of infection, the evidence at the present time is less conclusive. Nothing suggestive of an initial lesion producing definite symptoms has been located there, nor has the bacillus been found in food-stuffs, except in the human milk. The invasion of the bacilli may take place through the *skin*, especially when the stratum corneum has been abraded by traumatism, or its resistance lowered by some form of dermatitis. The *genital organs* may also be the means by which the bacillus gains entrance, and in this case the infection probably takes place from lepromata situated on the penis or in the vagina. Although the testicles are frequently involved there is no distinct evidence of infection from the semen. Congenital leprosy has not been proved to occur, and in this the disease shows a strict parallelism with tuberculosis, for infants of leprous parents are not born with leprosy, but may become infected subsequently as a result of a hereditary weakness or predisposition and an existence in an environment in which contagion is liable to occur.

MODE OF DISSEMINATION OF THE LEPRA BACILLI AFTER INVASION.

After gaining entrance the lepra bacilli may be found widely distributed throughout certain of the tissues of the body. They may occur in the skin, eyes, mucous membranes, lymphatic glands, viscera, and peripheral nerves. They are absent from the muscles, bones, and joints. They do not occur in physiological secretions unless pathologically contaminated. According as the bacilli show a special predilection for the peripheral nerves in contra-distinction to a more general invasion of the tissues, with the formation of nodules or lepromata in the skin and viscera, so the two great types of the disease are produced—namely, the maculo-anæsthetic and the nodular type.

Relation of maculo-anæsthetic and nodular leprosy.—The question of the relation of maculo-anæsthetic leprosy to nodular leprosy raises certain important problems with regard to the pathology of the disease. At the present time the precise conditions which determine that a case should pertain to the one type or the other are imperfectly understood. Various hypotheses have been advanced to explain it. It has been asserted, for example, that the variation in type is simply the result of a *quantitative difference in the number of bacilli*, and that where the bacilli occur in large numbers nodular leprosy results, while if the bacilli are few the manifestations are those of the maculo-anæsthetic type. This explanation is not convincing, because in the mildest cases of nodular leprosy large numbers of bacilli occur, while in the most severe cases of maculo-anæsthetic leprosy fewer bacilli may be found in the nerves, and the most careful search for them in the viscera and in the maculo-anæsthetic patches may give negative results. The cause of the vast proliferation of bacilli in the nodular cases is uncertain. Is it a racial peculiarity? Is it the result of climatic conditions? Is there a hereditary or acquired immunity by which an individual is rendered an unsuitable soil for the propagation of the bacilli, so that only the peripheral nervous system remains markedly susceptible? It has been suggested, on the other hand, that the difference in type of case is the result of a *qualitative difference in virulence of the bacilli*, and that when virulent bacilli are present nodular leprosy is produced, but where the bacilli are of low virulence maculo-anæsthetic leprosy results.

SOME CONSIDERATIONS ON THE HISTO-PATHOLOGY OF THE LESIONS PRODUCED IN THE TISSUES BY THE DIRECT OR INDIRECT ACTION OF THE LEPRA BACILLI.

After gaining entrance into a tissue the bacilli appear to lie at first in the lymph spaces, and owing to their presence produce a mild inflammatory reaction. In comparison with that caused by the tubercle bacillus this reaction is slight,

[8] Journal of Tropical Medicine, 1906.
[9] Report on Leprosy in New South Wales, 1898; Lepra, 1900, vol. i., p. 142.
[10] Indian Medical Gazette, 1904.
[11] Lepra, 1907, vol. vii., p. 174.
[12] Deutsche Medizinische Wochenschrift, 1899, Band xxxix.

but owing to its prolonged existence a peculiar type of infiltration is the result, which, though it has the same broad characteristics as that of other "infective granulomata," has peculiarities which render its diagnosis certain. At first the infiltration is non-distinctive, and consists of round and spindle-shaped connective-tissue cells (derived from the fixed tissue and the adventitia and endothelium of the blood-vessels), lymphocytes, mast cells, and occasional polynuclear leucocytes should pyogenic micro-organisms be present. So far the situation of the bacilli is mainly extracellular. As the bacilli multiply they form colonies or globi united by homogeneous zoogloea, and the infiltration begins to show the presence of plasma cells around the blood capillaries. A certain number of bacilli become intracellular, and large characteristic cells containing vacuoles, one or more badly stained nuclei, and bacilli singly or in clumps may be noted. These are the so-called "lepra cells," on the origin of which there has been much diversity of opinion as to (1) whether they are really cells derived from connective-tissue cells or plasma cells through the presence and action of the bacillus and its toxin within them; (2) whether they are sections of lines of bacilli lying in the lymphatic spaces; or (3) are simply clusters of bacilli round a lymphocyte or other cell. Certain of the "lepra cells" are enlarged and contain several nuclei, forming a type of giant cell which is different from the Langhans's giant cell of tuberculosis, in that it has neither the peripheral arrangement of nuclei nor the necrotic centre. Giant cells simulating the Langhans's cells have been described from time to time in leprosy, but before accepting these observations it is necessary to be certain that a mixed infection with tuberculosis did not exist. The bacilli enter and spread slowly through the lymphatics, forming new leprous deposits wherever they go, or they are more quickly distributed to neighbouring and distant parts by the blood-stream. The above, in brief, is the type of cellular infiltration of the "leproma," wherever it may be situated in the body.

In the *skin-lepromata* bacilli have been confined, as a rule, to the corium, and there is generally a thin layer which is free from bacilli immediately beneath the epidermis. One or two observers have detected bacilli in the deeper layer of the epidermis in and between the prickle-cells, and also in the corresponding layer of the hair-follicles, but it is doubtful if they exist in the sebaceous glands, as they have an aversion to fat. More important as regards the spread of the disease is the fact that bacilli have been found on the surface of the epidermis and in the scales. It is doubtful, however, if these bacilli have reached the surface from within, and it is much more probable that they have been deposited there from the nasal secretion or from the upper respiratory passages by sneezing or coughing. It is possible also that they may have been eliminated by the sweat, as they have been found both in the sweat and the sweat glands. The presence of bacilli in the small cutaneous nerves, and the changes produced by them, are responsible for the alteration in sensation on the surface of the nodule. The pathological condition of the nerves in nodular leprosy is of the same type as that in maculo-anæsthetic cases, but it appears later and spreads less rapidly.

Leprous infiltration of the viscera.—With regard to the leprous changes in the viscera little has been added to our knowledge since the last congress. In the *spleen*, in addition to the leprous infiltrations in the trabeculæ, pulp, and Malpighian corpuscles, extensive necrotic masses have been described by Arning [13] like those of tuberculosis with typical Langhans's giant cells. Such cases have to be further verified from the point of view of tuberculosis before they can be finally accepted. The involvement of the *genitalia* is a matter of great importance with regard to the spreading of the disease, but there still remain certain gaps in our knowledge on this subject. On the penis nodules and flat infiltrations or ulcers with pus and bacilli have been observed from time to time. Glück noted lesions of this type in 10 out of 40 cases.[14] In the testicles, although the connective tissue between the seminiferous tubules is markedly affected, the tubules themselves are not altered, and there is no distinct evidence that the semen contains bacilli. The atrophy which succeeds the sclerosis results in sterility. It is much the same with the ovaries. The presence of the bacilli excite a chronic ovaritis with interstitial reaction, followed by sclerosis and atrophy. The Graafian follicles are not attacked except secondarily, and the ova are not infected with bacilli.[15] The *mammary glands* are apt to be the site of leprous infiltrations and the milk may contain bacilli. The *kidneys* may be widely affected with leprous infiltrations, and bacilli have been detected about the glomeruli, the epithelium of the capsule, and in the uriniferous canals, but not in the urine. In the *lungs* a pure leprous infiltration may exist, with small peribronchial foci and an infiltration of the perivascular tissue with lepra cells, and not infrequently giant cells of the Langhans's type and caseation may be detected, indicating a mixed infection with tubercle bacilli. The *lymphatic glands*, like the lungs, may be the seat of a mixed infection with tuberculosis, and show caseation and other signs of it; on the other hand, a pure leprous infiltration may occur.

Although the changes in the *blood-vessels* in leprosy are now well known, and bacilli have been found in the endothelial cells, the *blood* changes have not been sufficiently worked out. Bacilli have been detected in the peripheral blood during the active stages of the disease by a number of observers (Köbner, Wolters, Wolff, Doutrelepont, and others). They were either lying free or in leucocytes or red blood cells. The blood changes are not characteristic, but are similar to those of chlorosis, and are possibly due to the anæmia associated with the disease. Eosinophilia has been observed by Gaucher, Bensaude, and others. *Note.*—In making blood-examinations in a case of leprosy it is important to avoid taking the blood from a leproma.

Ocular leprosy.—Considerable advance has been made recently in our knowledge of leprosy of the eyes. It is one of the late manifestations of nodular leprosy, and occurs usually after the face, eyebrows, and eyelids have been affected, and it is rarely a primary manifestation. Apart from the involvement of the eye due to pyogenic micro-organisms, or injury where the cornea is anæsthetic, or the eye is exposed through ectropion or paralysis of the sphincter, a true leprous infiltration of the eye may take place. When such occurs it is important to decide whether the infection spreads from within outwards or passes in from the outside. Until lately the generally accepted view has been that the globe of the eye is infected from within in consequence of a general infection, that the choroid is the common seat of the disease, and that the cornea is involved secondarily from the deeper parts.

In a recent paper on the subject Calderaro [16] advocates the view that the bacilli reach the eye from without. According to this observer the leprous infiltration spreads on to the globe from the margins of the eyelids, where he found numerous bacilli, even when the lids appeared to be normal. The first signs of this infection consisted of hyperæmia and infiltration of the conjunctiva, and a vascular pannus which gradually became converted into leprous tissue. The sclero-corneal limbus was next attacked, and a diffuse opacity of the cornea occurred, sometimes associated with the presence of small bullæ containing a dirty yellow fluid. The sclerotic usually protected the inner layers of the eye for many years, but before the disease had penetrated through it bacilli might be carried by the blood-vessels to the uveal tract. When this occurred the ciliary body was invaded and the iris became atrophic. The disease usually did not spread far in the choroid and the retina and optic nerve were seldom involved. Even in advanced cases, where blindness occurred, the tears were not found to contain bacilli.

Maculo-anæsthetic leprosy.—While all observers are at one with regard to the essential features of the histological architecture of the lesions in nodular leprosy, there is still a diversity of opinion with regard to the histo-pathology of the patches in maculo-anæsthetic leprosy. It has been suggested on the one hand that these patches have the same essential characteristics as the nodules, only less pronounced, and that they are simply an early stage in the evolution of the disease. The latter suggestion, however, is not borne out by the fact that all cases of leprosy do not begin with maculo-anæsthetic lesions. On the other hand, it has been asserted that they are totally different from the lepromatous nodules, the one being an infective granuloma, while the

[13] Schäffer: Lepra, 1900, vol. i., p. 11.
[14] Lepra, 1900, vol. i., p. 4.

[15] Glück and Wodynski: Archiv für Dermatologie und Syphilis, 1903, Band lxvii., p. 39.
[16] La Clin. Oculist, 1909.

other is in the nature of a persistent inflammatory process of the type of erythema perstans. The second suggestion appears to me to be the more probable. At first an erythema occurs which is followed by a slight infiltration of round and spindle-cells about the capillaries, sweat-glands, and hair-follicles, and a deposit of pigment in the perivascular cells. In association with this infiltration no true "lepra cells" can be detected. This process is centrifugal in its evolution, tending to disappear in the centre, so that ringed lesions may result.

The chief point at issue is the manner in which these changes are brought about. Certain observers believe them to be "neuro-leprides," and to be indirectly produced by the action of the bacilli on the nerves supplying the area affected, in the same way as the bullæ of nerve leprosy. Others regard them as the result of toxins eliminated by bacilli situated at a distance from the skin and circulating in the cutaneous capillaries, and as corresponding to the "tuberculides" of Darier. Others, again, consider them to be due to the action of the toxins of the bacillus *in situ*, and regard the nerve-change as secondary.

In consequence of these diverse opinions much interest has been centred round the question of the presence or absence of the bacilli in the maculo-anæsthetic patches. Some observers, such as Looft, Hansen, Pollitzer, and Klingmüller, have succeeded in finding bacilli in these patches situated in the endothelium and about the capillaries of the skin. There are others, however, who after the most patient search have failed to find them in true maculo-anæsthetic patches, while they have found them in slightly infiltrated lesions. A single definite instance, however, of bacilli being found in a true maculo-anæsthetic patch is of more value than all the negative evidence. After all, it may be extremely difficult to find bacilli in a patch of lupus vulgaris, and yet no one would deny that they are present and cause the affection. But when it is remembered that the lepra bacillus, unlike the tubercle bacillus, is a comparatively feeble micro-organism, and even in vast numbers may produce extraordinarily little reaction in the tissues, a doubt is raised as to whether a few lepra bacilli occurring in the skin are capable of causing a maculo-anæsthetic patch. It has been asserted that the bacilli are only present in the maculo-anæsthetic lesions at first and disappear from them later into the peripheral nerve-endings, and finally ascend into the peripheral nerves. This assertion has been put forward to explain the failure to find bacilli in the patches.[17] The *peripheral nerves* may be involved in all forms of leprosy, but it is in the maculo-anæsthetic type that the involvement is most marked and rapid. In this type of leprosy it would appear that the site of diminished resistance to the bacillus is *par excellence* the peripheral nervous system.

Much good work has been done recently in connexion with *nerve leprosy*, and considerable advance has been made in our knowledge of the subject. All leprologists are agreed that the lepra bacilli may affect the nerves in their whole course, but there is no unanimity with regard to the mode of invasion, and opinions are divided as to whether the nerve infection occurs first in the finer endings in the skin and ascends, or is a descending process, the result of a general infection.

Lie, in his excellent monograph,[18] supports the view that the nerve-endings in the skin are first attacked and that this is succeeded by an ascending neuritis. It is difficult to establish this hypothesis definitely as the earliest lesions are not observed microscopically, and the first changes to be detected have been in the peripheral nerves in the form of leprous infiltrations about the vessels of the perineurium and the endoneurium. The epineurium is not, as a rule, affected, unless from traumatism in exposed situations such as the elbow. The bacilli may be within the connective-tissue cells or plasma cells, or may lie free in the lymphatic spaces. Between the nerve fibres they tend to occur in rows rather than in clumps or globi. They have been observed in the neurilemma and the sheath of Schwann,[19] but they have not been detected in the axis-cylinder of the nerves. The presence of the bacilli and their toxins lead to neuritis and interstitial proliferative changes, which, by pressure on the vital nerve tissue, cause degeneration and a fragmentation of the axis-cylinder. Although the bacilli are present in large numbers in the nerve tissue they do not occur in such masses as in lepromata.

It has been asserted that the painful neuritis set up by the bacillus leads to its eventual destruction, so that nerve leprosy is, in a fashion, self-curable. This is a hypothesis of considerable interest, as it would mean, if it were true, that many maculo-anæsthetic lepers, in whom the disease is of old standing and appears to be quiescent, are in a sense cured, the actual virus of the disease being no longer present, only the effects in the form of anæsthetic patches or trophic lesions. This is a point well worthy of discussion.

There is a great diversity of opinion with regard to the presence of the lepra bacillus in the *cord and spinal ganglia*. Certain changes occur in association with leprosy in the posterior columns of the cord at a certain stage in the development of the disease. These changes are not due to the bacillus *in situ*, nor are they characteristic of leprosy. They are more in the nature of the changes which follow the ascending degeneration of a peripheral nerve after injury. It has even been suggested that they are not due to either bacilli or ascending neuritis, but simply result from the general cachexia attendant on the final stages of the disease. Babes claims to have found bacilli in the motor cells of the anterior horns and in the cells of the spinal ganglia. The changes, however, in the anterior horns are too slight and inconstant to account for the state of the motor roots and for the degeneration of the motor nerves. The changes in the peripheral nerve system are responsible for the trophic disturbances associated with nerve leprosy; for the atrophic, weakly resistant skin, which is so liable to infection with pyogenic micro-organisms and to the formation of unhealthy ulcers; for the bullous eruptions, suppression of the sweat, vaso-motor disturbances like Raynaud's disease, loss of power and atrophy of the muscles, and necrotic changes in the bones. In addition to these direct effects, the devitalisation which results from the defective circulation renders the consequences of injury much more severe and retards recovery.

In conclusion, I would emphasise the importance of recognising the possibility of the *association of leprosy with other diseases* in the same individual and at the same time. Many mistakes have occurred from failure to recognise this possibility, and from regarding every symptom in a leper as being due to the lepra bacillus. Just as syphilis may occur in association with other affections, so may leprosy. The association of leprosy and tuberculosis has been frequently noted in the case of the lungs, and yet there has been a tendency to overlook this possibility elsewhere, and before regarding the caseation with Langhans's giant cells, which has been described in the spleen, lymphatics, and skin, as manifestations of leprosy, it is essential to eliminate by inoculation experiments the possibility of a mixed infection with tuberculosis. In the case of maculo-anæsthetic leprosy, in which psoriasis-like patches have been described, before regarding these as leprous changes it is well to consider the possibility of psoriasis and leprosy occurring together. It is not unusual to find psoriasis and syphilis together, and there is no reason why a common skin affection like psoriasis should not occur in a leper. The simultaneous occurrence of leprosy and syphilis, though unusual, has also been observed.

[17] Lie: Lepra, 1905, vol. v., p. 78.
[18] Lepra in Rückenmark und den peripheren Nerven, 1904.
[19] Sokolowsky: Virchow's Archiv, 1902, Band clxxxix., p. 3.

GUARDIANS AND MEDICAL OFFICERS.—It was recently proposed by the Chorlton-cum-Hardy board of guardians that representations should be made to the Local Government Board in favour of allowing all medical men to act as district medical officers and public vaccinators, payment for their services to be made according to a scale to be fixed by the guardians. This scheme was brought before a meeting of the finance and general purposes committee of the Salford guardians on August 13th. One of the guardians said the system was in operation in Scotland, and suggested that further inquiry should be made. Another gentleman said the resolution of the Chorlton union was brought forward by the Socialist section of the board, and moved that no action be taken. He thought that such a system would open the door to a good deal of corruption. The motion was not adopted.

The Hunterian Lectures
ON
MALFORMATIONS OF THE HEART.

Delivered before the Royal College of Surgeons of England on March 8th, 10th, and 12th, 1909,

BY ARTHUR KEITH, M.D. ABERD., F.R.C.S. ENG.,

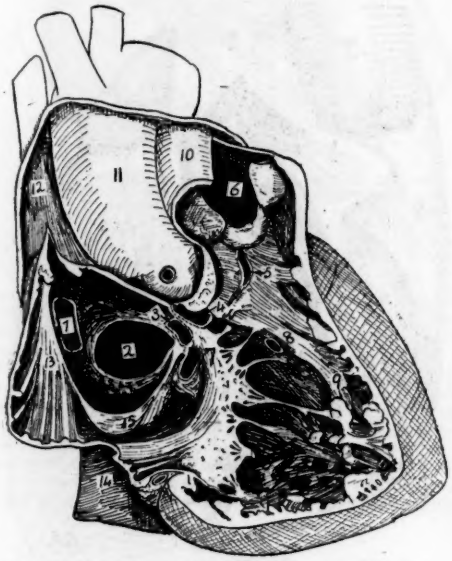
HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS OF ENGLAND, AND CONSERVATOR OF THE MUSEUM.

LECTURE III.[1]

Delivered on March 12th.

Absence of the septum ovale.—The condition I now proceed to describe to you, although frequently regarded as patency of the foramen ovale, is really a more serious defect. The malformation is shown in Fig. 19; we have no specimen in

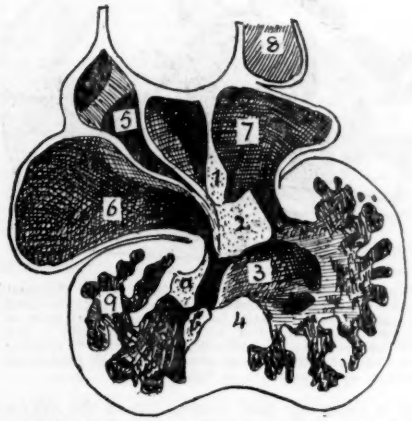
FIG. 19.



Right chambers of a human heart exposed to show the position at which various communications in the septum may occur. 1, Communication at posterior part of the interauricular septum (probably inter-sinus); 2, absence of the septum ovale; 3, the foramen primum; 4, the interventricular foramen; 5, infundibular or interbulbar foramen; 6, pulmonary artery laid open; 7, on septal cusp of tricuspid near the opening of coronary sinus; 8, unusual site of anomalous interventricular foramen; 9, moderator band; 10, pulmonary artery; 11, aorta; 12, superior vena cava; 13, taenia terminalis; 14, inferior vena cava; 15, Eustachian valve at opening of inferior vena cava.

the College collection and I have seen only five examples. Not only is the foramen ovale open, but the septum ovale—that part of the interauricular septum which forms the floor of the fossa ovalis—is absent, so that there is a large circular window between the two auricles. The lower margin of the orifice is formed by a septal strand which can be traced to the valves bounding the orifice of the coronary sinus, which it will be remembered are derivatives of the first chamber of the heart—the sinus venosus. The condition is interesting because it bears out the statement made by His, and afterwards denied by Born, that in the lowest part of the interauricular septum there is an element derived from the sinus venosus (Fig. 20). It is also important because the node or small mass of peculiar muscle in which the auriculo-ventricular bundle commences is found in the region of the interauricular septum formed by the sinus element. Indeed, Retzer regards the node as really composed of sinus musculature and the bundle and its branches as outgrowth from the node—a view which is not only in opposition to all that is known of the comparative anatomy of the bundle, but also unsupported by embryological evidence. In cases of absence of the septum ovale the element derived from the sinus and described by His under the name of spini vestibuli is present, while the real interauricular septum, at least the part which forms the septum ovale, is absent. In a model prepared by His the spini vestibuli grows out from the lower fornix of the venous valves which guard the orifice of the sinus venosus,

FIG. 20.



Coronal section of the heart of a human embryo about five weeks old. (After His). 1, Lower end of interauricular septum; 2, separation between auriculo-ventricular orifices formed out of the endocardial cushions—it is joined by the venous valves on the right side; 3, interventricular septum within ventricle; 4, the same on section; 5, opening of sinus venosus between right and left venous valves; 6, right auricle; 7, left auricle; 8, left superior vena cava; 9, infundibulum; *a*, *b*, lower ends of infundibular septum.

and reaches the endocardial cushions to fuse with the lower margin of the real interauricular septum, known to embryologists as the septum primum (Fig. 20). In reptilian hearts the lower fornix of the venous valves ends on the auriculo-ventricular valves (see Fig. 2 in THE LANCET, Feb. 27th, 1904, p. 556).

Abnormal foramen in posterior part of the interauricular septum.—There is another defect of the auricular septum of which I have seen but two examples: one of them occurred in the case of a woman, aged 45 years, under the care of Dr. F. J. Smith in the London Hospital. The defect, a large aperture, 15 by 20 millimetres, situated in the auricular septum above the fossa ovalis (Fig. 19), gave rise to no symptoms during life. In this case the defect was correlated with an abnormal termination of the right pulmonary veins; they terminated in the right auricle between the openings of the upper and lower caval veins. The mixed blood of the right auricle had by means of the interauricular defect free access to the left auricle. The communication in this case is probably one between the parts of the right and left auricle formed out of the sinus venosus.

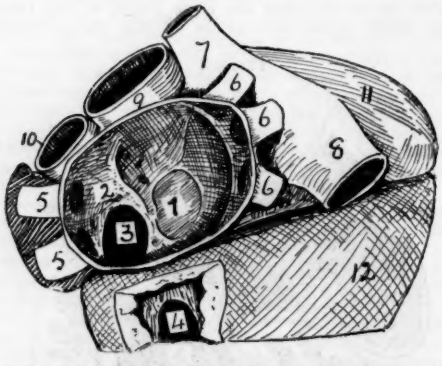
Premature closure of foramen ovale.—How far imperfect formation and premature closure of the foramen ovale is a factor in the causation of other congenital malformations of the heart I am not yet in a position to say, but I have observed in several cases that the opening and fossa were abnormally small.

Abnormal septum in left auricle.—Time does not permit me to deal with the various abnormalities of the Thebesian, Eustachian, and other remnants of the two venous valves in the right auricle. In THE LANCET of Feb. 27th, 1904, p. 556, I have figured a case where both valves persisted. I now pass on to another condition which is not yet represented in the College collection—viz., the presence of an abnormal septum in the left auricle. The three cases which I have seen are those already published by Professor T. Wardrop

[1] Lectures I. and II. were published in THE LANCET of August 7th (p. 359) and 14th (p. 433), 1909, respectively.

Griffith (two) and by Dr. H. D. Rolleston (one). The illustration is taken from a case well reported by Potter and Ranson in the *Journal of Anatomy and Physiology* (October, 1904, p. 69). The left auricle is imperfectly divided by the septum into two compartments, one of them receiving the pulmonary veins—the vestibular part, the other or body of the auricle communicating with the appendix as well as the vestibule (Fig. 21). The condition is interesting

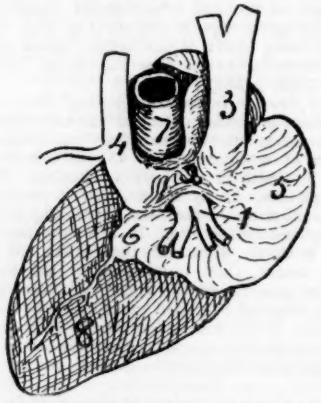
FIG. 21.



Left auricle opened to show subdivision by an abnormal septum. 1, Septum ovale in left auricle; 2, abnormal septum; 3, communication between vestibule and body of left auricle; 4, cavity of left ventricle opened; 5, left pulmonary veins; 6, right pulmonary veins; 7, superior vena cava; 8, inferior vena cava; 9, aorta; 10, pulmonary artery; 11, right auricle; 12, right ventricle.

because it shows the dual composition of the left auricle, one part, the vestibule, being derived from the opening up of the common termination of the pulmonary veins, the other from the primitive auricle. The abnormal septum occurs at the line of fusion of these two elements. In Fig. 22 is represented a heart in which there has been an arrest of the expansion of the pulmonary sinus to form the vestibule of the left auricle. I have seen

FIG. 22.



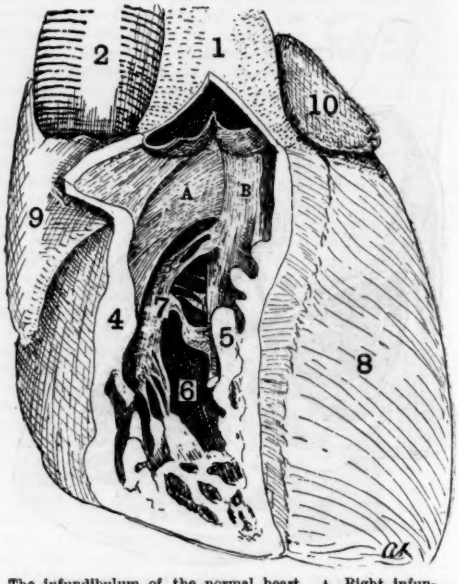
Arrest in the development of the vestibule of the left auricle. 1, Pulmonary veins; 2, unexpanded vestibule of left auricle; 3, right superior vena cava; 4, left superior vena cava; 5, right auricle; 6, coronary sinus; 7, aorta; 8, ventricles.

three hearts showing this arrested condition of the vestibule—all of them associated with other grave malformations. As in the case shown in Fig. 22, the left superior vena cava and left duct of Cuvier have persisted.

Interbulbar or infundibular foramina.—Before describing the defects of the interventricular septum it is convenient to return again to the aortic end of the heart and to describe certain defects in the septum of the heart which are at present very imperfectly understood. The position in which such a defect occurs is shown in Fig. 19. The opening is seen to be situated in the septal wall of the infundibulum of the right ventricle, and to communicate with the left ventricle under the right coronary cusp, which forms the upper boundary of the opening. It is situated in that part of the heart which we have seen is derived from the bulbus cordis, and we are dealing here with a defect, not really of the interventricular septum, but of the interbulbar. Rokitansky, in his classical monograph, represents exactly the condition seen in a specimen lately shown to me by Professor Wardrop Griffith, and in two others, one in the Museum of St. George's Hospital, and already described by Dr. Rolleston and another in the Museum of Guy's Hospital. In the heart figured in my first lecture (Fig. 2, THE LANCET, August 7th, p. 360) a fibrous raphe (the interbulbar raphe) is seen to descend on the inner wall of the infundibulum, stretching from the semilunar valves above to the interventricular orifice below. It is in this raphe that interbulbar foramina occur.

Even in the normal heart a trace of the interbulbar raphe may be seen (Fig. 23). On the septal wall of the infundibulum two great bands of musculature are seen to arise, and descend

FIG. 23.



The infundibulum of the normal heart. A, Right infundibular band; B, left infundibular band; between their origins is seen the infundibular raphe. 1, Pulmonary artery; 2, aorta; 3, pulmonary valves; 4, 5, constriction marking the site of the ostium infundibuli (5 is on section of moderator band); 6, body of right ventricle; 7, tricuspid valve; 8, left ventricle; 9, right auricle; 10, left auricle.

on the inner wall of the right ventricle—one towards the base of the ventricle, and therefore fitly termed the right or basal band, and another towards the apex of the right ventricle, and which may therefore be named the left or apical band. These bands take their fixed origin from the interbulbar raphe and orifices of the aorta and pulmonary artery and play an important part in emptying the ventricle. The interbulbar septum is laid down at first as an endocardial fold into which the two muscular bands just described push their origins.

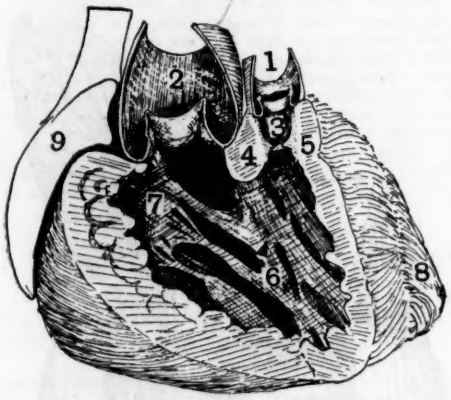
DEFECTS IN THE INTERVENTRICULAR SEPTUM.

1. *Interventricular foramina.*—The only malformation of the heart discussed by Hunter in his writings is that found in the heart of a boy in his fourteenth year whom he saw with Dr. Poultney. The heart showed a typical interventricular foramen associated with that conditon of pulmonary stenosis already described in these lectures as due to an arrest in the development of the infundibulum of the right ventricle. In the majority of such cases (85-90 per cent.) an interventricular foramen is present. Hunter regarded the obstruction at the entrance to the pulmonary artery as the cause of

the interventricular foramen; Meckel, on the other hand, regarded the foramen as primary and the pulmonary stenosis as a sequence. There is not yet sufficient evidence to decide which of these two theories is true, but what there is points to Hunter's suggestion being the more correct one.

The boundaries and relationships of the interventricular foramen are shown in a heart represented in Figs. 24 and 25. The right ventricle and atrophied infundibulum below the pulmonary artery are laid open in Fig. 24. The lower

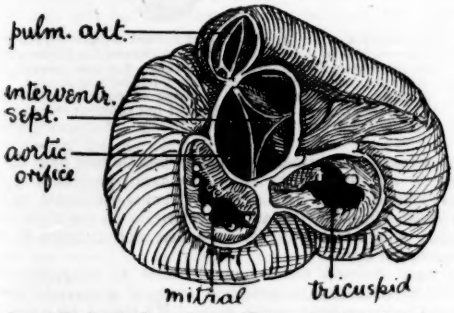
FIG. 24.



Heart of a boy, aged six years, with right ventricle and aorta opened out to show relationships of the interventricular foramen. 1, Pulmonary artery; 2, aorta; 3, unexpanded infundibulum; 4, right infundibular band; 5, left infundibular band; 6, on moderator band which contains right septal division of the *a.v.* bundle; 7, tricuspid valve; 8, left ventricle; 9, right auricle.

margin of the foramen is formed by the interventricular septum; the posterior boundary is formed by a band of fibrous tissue which is situated just below the non-coronary cusp of the aorta and derived from the mass of fibrous tissue formed out of the endocardial cushions. The upper boundary, cut across in the figure to display the interior of the aorta, is formed by the lower margin of the aortic orifice, while the anterior margin is formed by the interbulbar septum. Thus the interventricular foramen extends along the upper margin of the interventricular septum from the interbulbar septum in front to the intervalvular or auriculo-ventricular septum, formed out of the endocardial cushions, behind. Its size is extremely

FIG. 25.



Base of the heart of a girl, aged 13 years, in which there is arrest of the infundibulum with large interventricular foramen. The position of the aortic valves is shown and the subdivision of the aortic orifice by the upper margin of the interventricular septum.

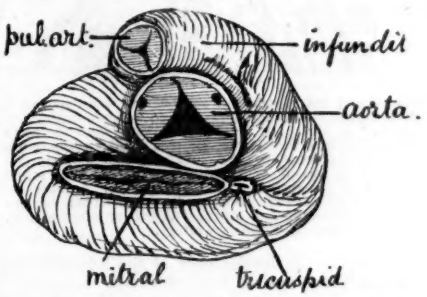
variable; usually it is about 8 × 12 millimetres, but it may be little more than a pinhole or large enough to take three or four fingers at once. The exact sequence of events which lead to the normal closure of the interventricular foramen is not known, but from the fact that the foramen disappears as soon as the infundibulum has become opened up and incorporated with the right ventricle very early in the second month one may reasonably infer that its closure depends on the full development of the infundibulum. Indeed, as one may see from an examination of the heart in Fig. 24, the expansion of the bulbus cavity to form the infundibulum must play a most important part in its closure. In that diagram the figure "4" marks the right infundibular band of muscle which springs from the interbulbar septum. It will be apparent that as the infundibulum expands this great band of musculature is thrown across and helps to occlude the interventricular foramen. The occlusion is completed by the fusion of the endocardial cushion which lines the margin of the foramen. The tissue of this endocardial cushion forms the substance of the pars membranacea septi —the curtain which closes the interventricular foramen.

The effect of an interventricular foramen on the action of the heart.—The functional significance of an interventricular foramen is best realised by such a view of the heart as is represented in Fig. 25. It is from the heart of a girl, aged 13 years, in which the infundibulum was only partially opened up. The upper margin of the interventricular septum is seen to divide the aortic orifice into two parts, one-third of it being in communication with the right ventricle, two-thirds with the left. The body of the right ventricle discharged its blood by two orifices: (1) a small part into the constricted infundibulum; and (2) a much larger part into the aorta. The walls of the body of the ventricle are hypertrophied so as to be able to compete on equal terms with the left ventricle in supplying the body with blood.

It is difficult to account for those comparatively rare cases where an interventricular foramen is present, yet the hearts seem otherwise perfectly formed. I have seen nine hearts of this kind. In all the foramen was of comparatively small size and had a membranous margin. The theory I have advanced, that the expansion of the infundibulum leads to the closure of the interventricular foramen, will not account for these cases. This class of hearts requires further study.

Irregular interventricular foramina.—Amongst the specimens examined for the purpose of these lectures there were four in which the interventricular septum was perforated by irregular foramina—apparently interstices in the original muscular sponge work of the septum which had remained unobliterated (Fig. 19).

FIG. 26.



Base of a heart in which there are (1) stenosis of the right auriculo-ventricular opening; (2) suppression of the body of the right ventricle; and (3) development of the infundibulum of the right ventricle. The common ventricle is really the left; the auriculo-ventricular bundle in seen on the right lateral wall of the ventricle.

Atrophy of left auricle.—The older writers on malformation in the heart endeavoured to utilise the classification employed in comparative anatomy and divide abnormal hearts into two-chambered and three-chambered hearts. A two-chambered human heart I have never seen; in three hearts of stillborn children, where there was complete stenosis of the mitral orifice, the left auricle was so small that it might easily have escaped detection; I have never seen the interauricular septum completely absent.

Hearts with one ventricle.—Amongst the malformed hearts which are said to have a common ventricle there are really three kinds: (1) those in which the interventricular septum is so little developed, or, to put it differently, the interventricular foramen is so large that the two ventricles are rightly said to form one chamber; (2) those cases where the right ventricle is suppressed by the septum being applied to the right side of the heart; and (3) those in which the left ventricle is suppressed by the septum being applied to the left wall of

the ventricle. The first form is the commonest (nine cases) and is often associated with transposition of the arterial trunks; of the second form I have examined seven cases and of the third five cases. In the second and third groups the absence of a ventricle is associated with a complete obliteration, or almost complete, of the corresponding auriculo-ventricular orifice (Fig. 26). The obliteration is probably due to the fusion of the endocardial tissue out of which the auriculo-ventricular valves and cushions are formed.

Development of the interventricular septum.—A bifid condition of the apex of the heart is not uncommon as an abnormality in man and is the normal form in some mammals such as the dugong. I refer to the condition here because it was difficult to give a satisfactory explanation when the interventricular septum was regarded as an upgrowth from the floor of the primitive ventricle. We now know that the opposite is the case; the ventricular cavities are downgrowths or evaginations of the primitive cardiac tube, the septum being left between them during development. The upper margin of the septum thus represents a part of the lumen of the primitive heart; in the upper margin is developed the auriculo-ventricular bundle (Figs. 20 and 27).

The auriculo-ventricular junctional system in abnormal hearts.—I have investigated the condition of the auriculo-ventricular bundle, or, to use a term more expressive of its real nature, the auriculo-ventricular junctional system, in malformed hearts. The main bundle of this system has a definite relationship to the interventricular foramen which is well shown in the heart drawn in Fig. 27. The heart is that

FIG. 27.

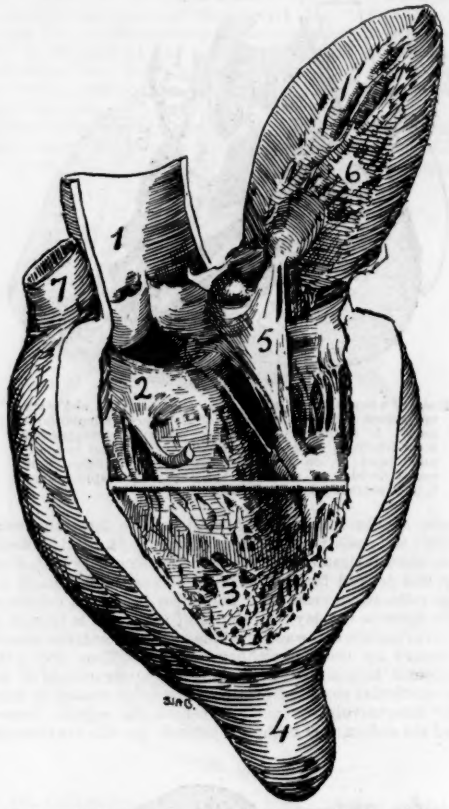
The aorta and left ventricle of an abnormal heart opened to show the interventricular foramen and auriculo-ventricular bundle. 1. Aorta. 2. Musculature rising from the aorta above the interventricular foramen; this musculature frequently persists as the subaortic musculature and covers the auriculo-ventricular bundle. 3. Left septal division of the auriculo-ventricular bundle. 4. Interventricular septum, with main bundle on its upper margin. 5. Subaortic bundle. 6. Mitral. 7. Wall of left ventricle. 8. Left auricle. 9. Pulmonary artery.

of a boy in which the development of the infundibulum was arrested and there was an interventricular foramen. The bundle is seen passing along the upper border of the interventricular septum, just below the foramen; the left septal division is seen streaming down the septum and ending in branches on the musculi papillares. This specimen also shows another abnormal condition which has a special interest because of its relationship to the bundle. It will be observed that there is a muscular curtain spanning over the interventricular foramen; the part of the curtain above the foramen would, if that opening had become closed, have formed the pars membranacea septi. Now the pars membranacea septi does sometimes contain muscle in quite normal hearts; there is a good specimen now in the Museum collection. Such an abnormal musculature—the subaortic musculature—overlies and hides the main bundle. This musculature is always present in the hearts of ungulates.

In Fig. 24 the position of the bundle on the septal wall of the right ventricle can be realised. It commences in the node situated behind the tendon of the septum (above point marked "7") and passing forwards on the lower margin of the foramen sends its right division into the moderator band of the right ventricle. In the heart shown in Fig. 24 the infundibulum is arrested, but had it gone on to normal development its lower margin would have extended as far as the moderator band, which thus marks the junction of the body of the right ventricle with the infundibulum—the part derived from the bulbus cordis.

The last abnormality I propose to deal with is that shown in a specimen just added to the Museum—the moderator band of the left auricle. The doyen of British anatomists, Sir William Turner, was the first to call attention to it, and Professor Wardrop Griffith has described several specimens. It is especially frequent in abnormal hearts and has a definite relation to the left septal division of the bundle (Fig. 28).

FIG. 28.



Left ventricle of an abnormal heart opened to show (1) the interventricular foramen; and (2) the moderator band (drawn by Dr. Stanley Beale). 1, Aorta, opened. 2, Upper margin of interventricular septum, at origin of left moderator band. 3, Apex of left ventricle. 4, Apex of right ventricle. 5, Anterior cusp of mitral. 6, Wall of left ventricle thrown up. 7, Pulmonary artery.

The fibres of the auriculo-ventricular bundle pass by it across the left ventricle to the anterior musculi papillares in the same manner as the right septal division is conducted by the moderator band to the anterior musculus in the right ventricler The left bundle is not a constant structure in any mammalian heart.

I have devoted these three lectures to bringing before you the results of an intermittent study of malformed hearts extending over some seven years. My reason for applying myself to this particular subject was not merely to gather cases as a collector may curios but with a definite, or rather a twofold, object—(1) I hoped to obtain some light on the development and morphology of the heart; and (2) the subject required systematisation, for the numerous cases annually recorded in the medical press, the mere references to which take up over 12 columns in the invaluable index catalogue issued from the office of the Surgeon-General of the United States army, were often rendered of little value because the recorder was unaware of the points which were most worth investigating and recording. These were my two objects. At least to some extent my study has been

successful. It brought to light the fact that there is buried in the heart an unrecognised element which is more frequently malformed than any other part of the heart; it has helped to demonstrate that the left auricle is dual in its composition.

I am also convinced that these lesions are not the result of fœtal endocarditis for the following reasons. 1. It is impossible to conceive endocarditis giving rise to the great majority of the malformations which are here described. 2. The tissue in the neighbourhood of the lesions is not cicatricial, except in those cases which are at the time of death the seat of vegetations, the result of an infection after birth. 3. In 23 children, all of which showed some malformation of the body—hare lips, cleft palate, atresia ani, anencephaly, &c.—there were 14 with an associated malformation of the heart, especially pulmonary and aortic stenosis. Malformations of the heart evidently result from those unknown causes which give rise to malformations of the rest of the body. We are not dealing here with the results of an infection but with a disturbance of the conditions in which the embryo develops. The exact nature of that disturbance is being elucidated at present by the investigations of experimental pathologists.

THE EARLY SIGNS OF RHEUMATISM OF THE HEART.

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THERE are few subjects of greater importance in clinical medicine than the association of rheumatism and heart disease. The recognition of the involvement of the previously healthy heart in a first attack of rheumatism is an almost daily problem at the bedside and the correlation of the physical signs there observed with the actual condition of the heart is of vital interest. Thus our position with regard to this question requires frequent revision in the light of advancing knowledge. Rheumatism attacks all three of the anatomical layers into which the heart is usually divided—pericardium, myocardium, and endocardium. There is usually no particular difficulty in recognising early pericarditis and so inflammation of the pericardium needs no further discussion. Yet it must not be forgotten that rheumatic pericarditis is always accompanied by inflammation of the other layers. With the myocardium and endocardium the case is different. Until the delivery of the Lumleian lectures in 1894 by Sturges, attention was mainly devoted to the endocardium and endocarditis was regarded as a sufficient cause for the physical signs that were noted. Of more recent years, however, arguments in favour of a myocarditis have been advanced, chiefly by Lees and Poynton, who from the clinical side have insisted that dilatation of the heart is almost invariable in rheumatism and that local inflammation of a valve would be quite insufficient to account for early incompetence. Pathologically, too, a peculiar type of inflammation in the interstitial tissue of the myocardium has been found by several observers, as well as some doubtful evidence of muscular degeneration, although no alteration of the muscle can be seen macroscopically. The proved existence of a myocarditis has been accepted as an adequate explanation both of the dilatation and of the abnormal sounds that are heard, but it must be confessed that the lesions in the myocardium, like those in the endocardium, are local and limited and seem in themselves too small in extent to account for these clinical manifestations.

The most recent work on rheumatic myocarditis [1] requires detailed consideration. This observer (Dr. Carey F. Coombs) finds that in the stroma of the myocardium nodules are formed consisting entirely of large fusiform cells, many of which are multinucleate. These seem to be fibroplastic in nature, and subsequently undergo fatty degeneration or become fibrous cicatrices. The nodules are evidently of the same nature as the subcutaneous nodules of rheumatism and as the nodules found in the pericardium and endocardium. They develop especially in the neighbourhood of arteries and arterioles; the left ventricle is far more affected than the right, particularly near the root of the aorta and the mitral ring and at the apex near the interventricular septum. Few nodules are found in the septum itself, and the same applies to the papillary muscle. Foci of leucocytosis, chiefly polymorphonuclear, are also seen, but these represent œdema due to passive venous congestion. Dilatation of both ventricles is constant and often of considerable degree; this is to be ascribed to muscular atony under the influence of toxæmia. The dilatation is greater in degree than the histological changes would lead one to expect.

From the above description, which is derived from the careful study of eight cases of "rheumatic carditis," it is evident that the inflammation in Dr. Coombs's cases was local and limited, and his further conclusions seem hardly justified, that the physical signs characterising the rheumatic heart disease of childhood are in the majority of cases referable to the myocardial lesions and not to those of the serous layer, and that death during childhood from rheumatic carditis is, more often than not, directly due to myocarditis.

With regard to the first of these conclusions it is essential to consider what are the physical signs of rheumatism of the heart apart from pericarditis; I think the following are generally regarded as being most typical: evidence of dilatation of the heart, weakening and shortening of the first sound to almost complete obliteration, and the development of certain murmurs. Dr. Coombs is an advocate of the bacterial origin of rheumatism, and certainly his careful examination of a number of hearts is in favour of the view that the lesions he describes are the local reaction to focal development of micro-organisms, bearing the same relation to acute rheumatism as the intestinal ulcers do to enteric fever. Admitting that rheumatism is a bacterial disease and that the nodules are the local expression of the growth of the organism, one may inquire how the nodules can produce these physical signs. Taking first the dilatation of the heart, which involves at least both ventricles, the mechanical effect of small localised foci of inflammation is obviously insufficient as a cause, particularly for the dilatation of the right ventricle where these foci are nearly or quite absent. One is therefore forced to conclude that the organism elaborates some poison in these foci which affects the muscle cells, causing them to lose their tonicity (it is the tone of the muscle which prevents dilatation in the normal heart). In this connexion it is interesting to note that the organism described by Poynton and Payne as the cause of rheumatism produces formic acid by its growth, and that lactic acid, as shown by Gaskell, diminishes the tone of the cardiac muscle (and also the contractility as is evident from Gaskell's curves). The poison so produced might have a local action on the adjacent muscle fibres or a general action by being absorbed into the circulating blood and so conveyed to all parts of the cardiac muscle. The local action of the poison may be important, as will be emphasised later, but is quite insufficient to account for the general ventricular dilatation, especially of the right ventricle, where the inflammatory lesions are scarce. Thus to explain the dilatation it is necessary to suppose that the toxin, whatever its nature, is absorbed into the general circulation and conveyed to all parts of the cardiac muscle by the blood-vessels. In these circumstances nodules in the myocardium would have little more effect in producing dilatation than nodules, or foci of inflammation, in the pericardium, endocardium, subcutaneous tissues, or joints. Hence it follows, if this reasoning is correct, that dilatation of the heart is not necessarily a sign of rheumatic carditis at all but may occur without any cardiac inflammation, just as it supervenes sometimes in diphtheria, enteric fever, and other acute specific diseases from the action of toxins on the cardiac muscle.

The weakness of the first sound is largely due to diminished contractility of the cardiac muscle and is probably also caused by the action of the toxin. Neither local inflammation nor local poisoning gives a quite satisfactory explanation of this general loss of contractility, which must therefore be ascribed to the absorption of toxins into the general circulation. It must be pointed out that fibroid degeneration of the cardiac muscle, which is patchy in its distribution, is usually accompanied by loss of contractility. Such fibroid degeneration is, however, generally accompanied by disease of the coronary arteries, and the loss of contractility is more due to diminished blood-supply than to fibrosis of the cardiac walls.

[1] Carey F. Coombs: Quarterly Journal of Medicine, 1908, vol. ii., p. 26.

The murmurs that develop during an attack of rheumatism are usually confined to the mitral area when there has been no previous valvular disease. In relation to the cardiac rhythm they are, first, a late diastolic murmur, and, secondly, a systolic murmur. These two bruits, as a rule, do not occur together and the diastolic is often replaced by a systolic in the later stages of an attack. They are both temporary murmurs, although the systolic may last until the development of a permanent systolic bruit due to deformity of the mitral valve from contraction after valvulitis. Neither of these murmurs can be explained by an active inflammation of the valve, since there is no reason why this should hamper the functions of the valve in any way. Personally, I consider that Dr. Coombs's explanation of the mode of production of these murmurs is in the main correct, but I differ from him in certain details.

Taking first the systolic bruit, its position and character are those of a murmur due to a regurgitation through the mitral valve. An inflammation of the cusps of the valve could not render it incompetent until the cusps were deformed by the subsequent contraction, and this systolic murmur is often one of the earliest phenomena of rheumatism. Dilatation of the left ventricle may lead to incompetence of the valve, but considerable dilatation is often found without a murmur, and even in rheumatism a murmur often develops, while there is but little dilatation. Hence, as Dr. Coombs rightly insists, the murmur must be caused by widening of the orifice by myocardial atony, and this is confirmed by the enlargement of the mitral ring that is found post mortem. To make this statement is, however, not sufficient: an explanation is required as to how such a widening is anatomically and pathologically possible. The cardiac openings are surrounded by fibrous rings and are closed completely by the cusps of the valves, provided the openings are sufficiently small. The pulmonary and aortic orifices do not vary much in size, but the tricuspid and the mitral can vary to a very considerable extent. The reason for this is that there is, besides the fibrous ring, a band of circularly disposed muscle fibres around each of the auriculo-ventricular openings and each of these orifices is dependent for its size on the tone of the circular muscle. The size, of course, increases with loss of tone and diminishes with increase of tone. It is by no means necessary that the tone of these muscle rings should be in exactly the same condition as the rest of the cardiac muscle; in fact, under normal conditions tone is probably greater here than elsewhere. The sphincters of the valves, if one may call them so, may also have their tone altered apart from the general cardiac muscle—e.g., by the action of nervous influences. The valvular cusps are so arranged that they can still meet and close the mitral opening with a moderate widening, so that considerable dilatation of the left ventricle may take place without incompetence of the valve. The capacity of the ventricle, too, increases in dilatation more rapidly than the area of its walls, so that a decided increase of the capacity of the left ventricle would be associated with a very slight widening of the mitral orifice.

From these anatomical arrangements it is evident that the main factor in the production of mitral imcompetence early in rheumatism is a loss of tone in the mitral sphincter. Are there any pathological reasons for a loss of tone in this sphincter as apart from a general alteration of muscle tone? We are informed that in rheumatism inflammatory nodules tend to develop, especially near the mitral ring and near the root of the aorta. In such nodules toxins would be elaborated (whether formic acid or others) and the lymph of the part would contain these toxins. Hence the muscle fibres of the mitral sphincter would be bathed in toxins, the special action of which is to diminish tonicity, while the rest of the cardiac muscle would be much less severely poisoned since the toxins must be absorbed into the general circulation in order to reach any fibres that are not in close proximity to the nodules. Thus in any rheumatic myocarditis an early loss of tone in the sphincter of the mitral valve would be expected with the development of a regurgitant murmur. Nodules tend also to be formed near the root of the aorta; but the aorta has no sphincter and so no change is produced in the size of the aortic opening by the local inflammation.

The other murmur that is produced during an attack of rheumatic fever is also heard at the apex but is diastolic in time. This murmur is soft and blowing in character, and has not the rough crescendo quality of the bruit of mitral stenosis. It could hardly be caused by the minute vegetations that are found on the valve post mortem, while the hypothesis that the valvular cusps become stiffened and so obstruct the blood has very little evidence in its support. The murmur is only temporary and seems to have nothing to do with the development of a genuine stenosis of the valve. A similar murmur may, however, be heard in mitral stenosis, especially in the later stages, when the left auricle fails in its duty of driving blood into the ventricle. In mitral stenosis this murmur is almost certainly due to the aspiration of blood from the auricle through the constricted mitral by the dilating ventricle. The suggestion of Dr. Coombs, that the diastolic murmur of rheumatism is due to the same cause, seems to me to be a sound one. The dilatation of the ventricle produced by the rheumatic poison would lead to a comparative narrowing of the mitral valve, since this is not stretched in proportion to the increase of the ventricular capacity, provided that the tone of the mitral sphincter is not specially damaged. The aspiration of the dilated ventricle through this comparatively narrow orifice would cause the bruit. The aspirating power of the dilating ventricle depends on the strength of its preceding contraction or, in other words, on the contractility of the muscle. The contractility is often damaged in rheumatism but not to the same extent as the tonicity, and the two properties are not affected in proportion to one another. Thus in a case of rheumatic dilatation of the heart it will depend on the extent of the damage to the contractility whether the diastolic bruit is heard or not. This conclusion, founded on theoretical considerations, accords with my vague recollections of clinical cases, but the point requires extended study at the bedside. It is of interest that a diastolic murmur does not develop in the dilatation of the heart in diphtheria; the diphtheritic poison mainly attacks contractility and only to a lesser extent tonicity.

While being convinced that the diastolic murmur is produced in the manner here described I cannot agree that the murmur has anything to do with inflammation of the cardiac muscle. Indeed, I should take it as a sign that myocarditis was absent and that there was merely poisoning of the muscle fibres. I have explained how myocarditis would be expected to result in a loss of tone in the mitral sphincter. Such a loss of tone, even if insufficient to cause a systolic murmur, would be quite enough to prevent a diastolic one from being developed, since the theoretical explanation of the latter presupposes a comparative stenosis of the mitral valve with dilatation of the ventricle.

Death in a first attack of rheumatism is very uncommon apart from hyperpyrexia, but a fresh attack of rheumatism may fatally affect a heart that is already damaged by valvular disease or pericardial adhesions, or where the muscle has been previously injured by poisoning or inflammation. The lesions of rheumatic myocarditis are in themseves quite insufficient to lead to a fatal issue, and the main factor in the production of a fatal cardiac failure seems to be action of the toxin on the muscle cells. In this respect rheumatism is like other specific diseases—for instance, diphtheria. In both diseases fatty infiltration of the muscle fibres has been described, but a poisoned cell need show no anatomical change from the action of the poison, and there is considerable doubt as to the pathological significance of fatty infiltration. It is evident that the action of the rheumatic poison is less severe than is the case with diphtheria. In rheumatism evidence of cardiac poisoning in the form of dilatation is very common, but death is very rare, while in diphtheria death is frequent when there is any dilatation to show that the heart is affected. The probable explanation of this is that the different poisons of different diseases affect the several properties of the cardiac muscle to different extents, and that the poison of rheumatism mainly attacks the tonicity, while that of diphtheria specially implicates the contractility.

In conclusion, it may be emphasised that, while pericarditis gives the usual well-recognised signs of its presence, recent endocarditis causes no physical signs whatever. Affections of the myocardium in rheumatism may be divided into the inflammatory and the toxic. Inflammatory lesions cause a loss of tone in the muscle which surrounds the mitral valve allowing of mitral regurgitation. Thus an apical systolic murmur is the sign of rheumatic myocarditis, and is, indeed,

the only sign of inflammation of the heart apart from pericarditis. In the majority of cases the presence of such a systolic bruit is diagnostic of myocarditis, but in a small minority a regurgitant murmur may result from general dilatation without any inflammation. Poisoning of the heart muscle in rheumatism causes a general dilatation of the heart and sometimes a mitral diastolic murmur. Dilatation may or may not be associated with inflammation of the myocardium, but the diastolic murmur may be taken to imply an absence of myocarditis at the time it is heard. As far as the immediate welfare of the patient is concerned the toxic action of rheumatism is more important than the inflammatory, since it is to the consequent failure of tonicity and contractility that death during an attack is due. For his future welfare the inflammatory lesions become of chief account. Myocarditis is probably always associated with endocarditis, so that there is danger of permanent damage to a valve and the inflammation in the muscle itself may lead to such local damage that tone is never regained, leaving a permanent widening of the orifice. It is probable that the muscle may sometimes completely recover both from the poisoning and the inflammation, but in other cases the muscle never again becomes healthy after their disappearance. Such occasional permanent damage to the muscle by the toxin would explain the different behaviour of different hearts after rheumatism. In some hypertrophy readily takes place and there is a ready compensation for valvular lesion, whilst others rapidly fail. Again, some hearts respond readily to drugs like digitalis, whilst others are feebly, or not at all, affected.

It would appear from the foregoing considerations that there has been a tendency to exaggerate the importance of myocarditis in rheumatism. The more pressing danger during an attack comes from the action of toxins on the cardiac muscle, and some of the physical signs are due to poisoning of the muscle. On the other hand, however, myocarditis is responsible for the only physical sign of cardiac inflammation apart from pericarditis, and cardiac inflammation is the cause of post-rheumatic valvular disease. It is probable, too, that the inflammation in the muscle assists to some extent in the production of a permanent incompetency of the mitral valve, and may also, in association with the toxin, be of account in permanently damaging the muscle, so that it may fail to "compensate" for valvular lesions and not be healthy enough to respond to the action of drugs.

Upper Berkeley-street, W.

FIVE CASES OF TUMOUR OF THE LARGE INTESTINE SIMULATING DISEASE OF THE UTERUS OR UTERINE APPENDAGES.

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THE following cases illustrate how closely tumours of the large intestine in women may simulate disease of the uterus or its appendages.

CASE 1. *Inflammatory tumour of the cæcum simulating a uterine myoma.*—Two years ago I assisted Dr. William Duncan to operate on an elderly lady who presented a large abdominal tumour centrally placed, defined in outline, solid to the touch, and dull on percussion. On vaginal examination it appeared to be attached to the top of the uterus and to be continuous with it. The principal feature of the case was the tumour, which had existed for a considerable time. Pain was complained of also. No menstrual symptoms were present but the patient had passed the climacteric. The general appearance and feel of the mass suggested strongly a uterine myoma undergoing some species of degeneration. There were no bowel symptoms.

On opening the abdomen in the middle line the mass was found superficially to be composed of a "cake" of much-thickened omentum which was closely adherent in front to the anterior abdominal wall and at its lower part to the top of the uterus and right appendage. Several small collections of pus were present between it and the abdominal wall. When the omentum had been separated with considerable difficulty it was found that the underlying portion of the tumour was composed of the cæcum and terminal four inches of the ileum. The wall of the bowel was enormously thickened and small and large intestine were firmly conjoined in a conglomerate mass. A diagnosis of malignant disease of the cæcum was therefore made and the involved intestine having been separated I assisted Dr. Duncan to resect the whole cæcum together with five inches of the adjacent ileum. The lower end of the ascending colon was closed and the cut end of the small intestine was implanted into its inner side, about one inch above the point of occlusion.

The patient subsequently developed a fæcal fistula with much suppuration in the wound, but eventually recovered and is at the present time, I understand, in very good health.

Microscopical investigation of the parts removed showed that the condition was solely due to an immense inflammatory sclerotic thickening of the intestinal wall. The appendix appeared to have been merged in the general tumour, at all events it could not be separately defined. The origin of the condition was therefore not determinable.

CASE 2. *Carcinoma of the transverse colon with a secondary growth in the sigmoid simulating a malignant ovarian tumour.*—A patient, aged 61 years, came under my care at the Chelsea Hospital for Women last September, giving a history of abdominal pain and wasting for the last four months. The bowels had been very constipated and much pain on micturition was complained of. On examination the abdomen was much distended by an irregular mass of variable consistency occupying its lower left quadrant. The flanks were dull and there was evidence of a considerable quantity of free fluid in the abdominal cavity. On vaginal examination the mass could be felt apparently arising from the region of the left ovary.

I made a median subumbilical incision, and on opening the peritoneum a quantity of ascitic fluid escaped. A mass of adherent omentum then presented which was attached at its lower part to the back of the uterus and left broad ligament. When this had been separated it was found to screen a tumour in the pelvis of considerable size, which was composed of adherent portions of the transverse colon and sigmoid flexure. On closer investigation it was seen to be due to a primary carcinoma of the middle of the transverse colon which had "sagged down" into the pelvis, adhered to the sigmoid flexure, infiltrated it, and perforated into it so that on separating the two pieces of gut a hole was left in either portion at the site of the short circuiting. I therefore first resected the diseased portion of the transverse colon and performed an end-to-end anastomosis of the cut ends and then similarly treated the infiltrated portion of the sigmoid colon.

This patient made a very satisfactory recovery, and at the present time is 1 stone heavier than she was before the operation, and without any sign of recurrence. The growth was proved to be a columnar-celled carcinoma.

CASE 3. *Carcinoma of the sigmoid colon simulating an ovarian dermoid cyst.*—On the same afternoon in which I operated on the foregoing case, and also at the Chelsea Hospital for Women, I opened the abdomen of a patient, aged 27 years, who presented a rounded, centrally placed tumour rising midway between the pubes and umbilicus, and situated in front of the uterus and between it and the bladder. Her history was one of severe pain on micturition and pain in the back extending over three months. She had had occasional attacks of diarrhœa. The rounded contour, the position of the tumour, its semi-solid consistency, and the age of the patient caused a pre-operative diagnosis of dermoid cyst of the ovary to be made.

I made a central incision over the tumour and found it to consist superficially of adherent thickened omentum, under and conjoined with which was a loop of the sigmoid colon containing a large annular growth. The bowel above the structure was much thickened and distended with fæcal masses. The whole mass lay between the uterus and bladder, filling up the utero-vesical pouch and was very adherent, especially to the bladder. Having freed the bowel and cut off the diseased omentum I resected some eight inches of the bowel, including the growth, and performed an end-to-end anastomosis having previously expressed from the colon above the fæcal accumulation that it contained.

The patient made an uninterrupted recovery. The growth proved to be a columnar-celled carcinoma.

CASE 4. *Carcinoma of the sigmoid simulating disease of the right uterine appendage.*—This case I also operated upon at the Chelsea Hospital for Women in September, 1908. Her age was 31 years, and her symptoms, which consisted of pain in the lower abdomen and back, had existed for three months. For the first two months of this period she had had frequent attacks of diarrhœa, but for the last month this had ceased and she had become very constipated. On abdominal examination there were tenderness and an ill-defined sense of swelling to the right of the middle line, and low down in the pelvis per vaginam a well-marked mass could be felt filling the right half of the pelvis and pushing the uterus forwards and to the left. A provisional diagnosis of inflammatory disease of the right ovary and tube was made.

When I opened the abdomen I found the tumour to consist of a loop of sigmoid colon at the flexure of which a large annular growth was situated. This was matted over with adherent small intestine and omentum and the whole conglomerate mass was attached to the back of the right broad ligament and the right lateral pelvic wall. The ovary and tube on either side were normal. Having separated the diseased intestine and removed the omentum, I resected the whole loop containing the growth together with some enlarged glands. The upper end of the bowel was then emptied of a large quantity of retained scybalæ and an end-to-end anastomosis was performed.

This patient also made an excellent recovery. The growth proved to be a columnar-celled carcinoma. At the present time the patient is quite well, I believe.

CASE 5. *Carcinoma of the sigmoid with secondary growth in the anterior rectal wall simulating a malignant ovarian tumour.*—In 1909 a patient aged 54 years was admitted into the Middlesex Hospital under my care as a case of malignant ovarian tumour. She was a miserably emaciated-looking woman with a degree of general abdominal distension but with no defined tumour to be felt from above. On vaginal examination a large mass lay between the back of the uterus and the front of the rectum and was apparently adherent to both. On rectal examination the tumour could be felt pressing on to the anterior rectal wall, which it had evidently superficially involved, but the mucosa of the bowel was unaffected. The history of the case was one of abdominal and pelvic pain for some months. For the last three weeks she had had diarrhœa.

I opened the abdomen in the middle line and found that the tumour was screened by a quantity of adherent omentum. It was apparently springing from the back of the right broad ligament, and I thought at first that I was dealing with some tumour of the ovary belonging to that side. I began to separate it, when a quantity of fæcal matter escaped into the pelvis and proclaimed the mass to be connected with the intestine. On separating it into its constituent parts and removing the diseased omentum I found it to be a large carcinomatous mass in the upper part of the sigmoid colon which had gravitated into the pouch of Douglas and then adhered to the anterior rectal wall which it had begun to infiltrate. I had torn through this mass while separating it from the rectum. I therefore resected the entire sigmoid colon, together with the upper part of the rectum, so as to include both areas of disease. Fortunately, owing to the extremely relaxed condition of the patient's mesenteries, I was able to pull the lower end of the descending colon down to the bottom of Douglas's pouch, and, obtaining sufficient free margin of the upper end of the cut rectum by freeing it from its peritoneal connexions and pulling it up, I was able to effect an end-to-end anastomosis. Before doing so, I emptied, as before, the colon of its retained fæcal matter, and as a considerable quantity of fæces had escaped into the pelvis owing to my tearing through the growth when separating it, the pelvis was carefully washed out with saline solution before I closed the abdominal wound.

The patient had a somewhat prolonged convalescence. The abdominal wound suppurated badly, but the line of anastomosis remained watertight although for some time she had a fæculo-purulent discharge from the anus. She left the hospital eventually in a very satisfactory state. The growth was proved to be a columnar-celled carcinoma.

These five cases are instructive from several points of view. The effect of gravity on tumours of the large intestine is seen to be very marked. In all of these patients the tumour mass had caused the affected portion of bowel to gravitate downwards into the pelvis, to certain of the structures contained in which it had subsequently adhered. In Cases 2 and 5 this adhesion had occurred between the diseased bowel and the healthy bowel below it. In Case 2 actual short-circuiting had taken place and in Case 5 was about to take place. In Case 1 adhesion had occurred to the top of the uterus, in Case 3 to the front of the uterus and bladder, and in Case 4 to the back of the right broad ligament. It is therefore apparent that in growths of the large intestine one must not expect to find the position of the tumour necessarily corresponding with the normal anatomical position of the portion of gut involved, and that it is not safe to exclude from the diagnosis any portion of the large intestine merely on account of the position of the mass to be felt.

Another important fact illustrated by these cases is the large size of the palpable mass that may be produced as a result of a growth of the wall of the large intestine. This mass is a *conglomerate*—i.e., it is made up of several constituents. First amongst these is the omentum, which early becomes adherent and thickened. This is augmented by fusion of the primary growth with neighbouring coils of gut, swollen appendices epiploicæ, the uterine appendages or the uterus itself. Finally, the whole becomes rounded off by collections of organised peritoneal exudate, and the result is a tumour of large dimensions of which the primary disease forms but a small part.

When such a mass occupies the pelvis the simulation of disease of the uterus or uterine appendages may be, as these cases show, very close indeed, especially in the absence of symptoms pointing strongly to the bowel. Slight intestinal symptoms, such as moderate diarrhœa or constipation, are so commonly met with in *bonâ-fide* disease of the female genital organs as to be of little value in the differential diagnosis.

It will be seen that in four out of the five cases end-to-end anastomosis was performed (in Case 2 in two places). I am aware that certain authorities favour lateral anastomosis in the case of the large intestine on account of the larger aperture of communication that can be effected between the anastomosed segments of the bowel. End-to-end union has, however, in my hands proved very satisfactory. It certainly has the advantage over lateral junction of reducing the suture line to its smallest limit and in the large intestine, where so free an anastomosis exists between the vessels of the meso-colon, the danger of anæmic necrosis of the sutured ends is very slight.

I have always used three layers of sutures: the first, a continuous suture through mucosa and muscle; the second, a continuous suture through muscle and peritoneum; and the third, a series of interrupted Lembert sutures picking up the peritoneum only. No doubt this involves the inturning of a considerable portion of the bowel wall, much of which subsequently sloughs off, but this is of small importance compared with rendering the line of junction watertight. I attach great importance to the emptying of the upper bowel before performing the anastomosis. It may be objected that this proceeding increases the risk of infecting the operation area, but I am of opinion that healthy fæcal matter, at all events, is very slightly septic, and that if the parts exposed by the incision are carefully packed off with sterilised gauze before the process and the bowel end thoroughly washed with saline solution after it, it may be carried out with great advantage to the patient.

Harley-street, W.

A CASE OF HENOCH'S PURPURA ASSOCIATED WITH ANGIONEUROTIC ŒDEMA.

BY ALEXANDER DON, M.A., M.B., C.M. ABERD., F.R.C.S. EDIN.,

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A BOY, aged 8½ years, whom I saw on Feb. 8th, 1908, had been ailing for over a fortnight, but had always been able to be at school. His appetite had been very good, but he had swelling of the left knee and ankle and dysentery. A week previously there had been a swelling over the dorsum of the right foot. The left knee next became painful, and on examination his mother found that it was swollen. The elbow then became sore. This was his condition when I first saw

him. The knee and elbow contained fluid. The skin around both looked as if bruised, and on different parts of the body were what seemed like old bruises, especially a mark over the right trochanter major. Closer examination showed that many of these were really subcutaneous hæmorrhages. The patches varied in size from sixpenny-pieces to half-crowns, were irregular in outline, and were in all stages of absorption, some being bright red, others darker, and some only little more than a greenish-yellow stain. Other spots resembled fleabites and did not show the changes mentioned as they faded. One of these was on the right cheek, and others over the trunk below the umbilicus and on both legs, feet, and arms. These spots were distinctly worse on the legs and forearms. There had been diarrhœa for a week, foul-smelling and dysenteric—i.e., containing blood and mucus. There was no pain in the abdomen. The temperature was 99° F. and the pulse was 100 per minute. There was no cardiac symptom nor albumin. He was put on powders, one four-hourly, containing calomel ½ gr., salol 2 gr., and pulv. ipecac. 1 gr. Next day, the 9th, the penis was œdematous with a hæmorrhage at the frænum. It was quite free from pain and the œdema stopped abruptly at the trunk. The knee was slightly better and the elbow a good deal. There were some new purpuric spots. On the 10th the whole scrotum was livid red and œdematous, but the point of the penis was less swollen. The elbow was quite better, but there was a good deal of greenish-yellow staining down the forearm. The right hip had several erythematous patches, raised up like true urticaria, but not itchy. The diarrhœa was less frequent. The temperature was 99·6° and the pulse was 100. A sample of fæces was taken for examination. Professor Sutherland reported on this as follows:—

A. Films made directly from the specimen are examined in the fresh condition on the warm stage and after fixing with corrosive sublimate and staining in hæmotoxylin and eosin. Films are also stained in methylene blue, in carbol fuchsin, and by Gram's method. Examination for amœbæ is negative. The following organisms are recognised: 1. Bacillus coli. 2. A large Gram-positive bacillus tending to form filaments and to spore. This is not Shiga's bacillus of dysentery. 3. Gram-positive cocci in pairs and singly. Examination for tubercle bacillus is negative. B. The cultures obtained on agar are those of the above-mentioned organisms.

The œdema gradually disappeared from the penis and upper parts of the scrotum. The knee and elbow on the left side improved, and a swelling began to rise on the front of the right forearm, which pitted on firm pressure. There was pain in the right heel but no œdema. On Feb. 12th the fæces were again sent for examination, and the report is as follows:—

A. An examination similar to the last is made. No amœbæ are found. The organisms are less abundant. B. coli is present in distinctly smaller numbers. The larger Gram-positive bacillus is only present in very small amount. The majority of organisms are cocci—often in long chains. Examination for tubercle bacillus is again negative. B. Abundant growths are obtained on agar of the large Gram-positive bacillus. The B. coli and the cocci are apparently overgrown. The larger number of fatty catarrhal cells, the abundance of red blood corpuscles, and the scantiness of leucocytes in the material point in the direction of an extensive catarrhal rather than suppurative inflammation of the intestinal tract.

The patch in front of the right elbow increased in size during the next few days and then faded, leaving a greenish-yellow stain. There was great pain of a colicky nature over the descending colon, and a firm sausage-shaped tumour could be made out on palpation, though the patient winced a little and fixed the abdominal muscles on that side. The left knee and elbow were now painlessly moveable. No new hæmorrhages or swellings had appeared. Next morning, the 13th, he was a good deal better, but there was still pain along the descending colon which was less distinctly palpable. There had been no movement of the bowels. After my visit I heard by telephone that he had had a bad attack of diarrhœa with vomiting. He vomited twice, the second time quite green material. The bowels moved almost continuously, 13 or 14 times, and latterly pure blood with great tenesmus. After the last motion he was quite exhausted and dropped off to sleep. I ordered Dover's powder two grains. He slept again after the first dose. His milk was now peptonised. On the 14th he was better, the temperature and pulse being normal. The scrotum was now quite normal except at its most dependent part, where a little œdema still persisted. The only motion was of the muco-sanguineous type, with a good deal of pea-soupy fæces. There had been slight hæmorrhage from the nose. On the 15th the dorsum of the right foot and the ankle were œdematous and pitted on pressure. There was no pain anywhere and he was quite cheerful. On the 16th the right foot was pretty much as before. He complained very much of his back and on examination I found a new œdematous patch right over the centre of the lowest dorsal spines, which were very painful to touch. There had also been some swelling of the right ear, but it had almost disappeared, only a little remaining at the junction of the pinna with the head above. There was a little blood in the stool last night. He seemed much lower to-day. His pulse was feeble and about 130 per minute, but there was no fever. On the 17th the temperature was 99·8° and the pulse was 96. The patient was looking rather tired and cried readily. There was no more diarrhœa and no pain on palpation of the abdomen. The right knee was distended with fluid and the œdema extended up from the foot to the knee. The foot was not now swollen. The patch on the head had spread over the temporal bone, and was well defined and painful to touch. The swelling on the back was just about the same. On the 18th the knee was less painful, and the œdema was up as far as the middle third of the thigh. The greatest change was in the head. What was a small patch of the size of the palm over the right temporal ridge had spread all over the top of the head and down to the other ear, closing the right eye, and down to the supra-orbital ridge of the left. It was only slightly painful now to touch. The pulse was 110 and rather feeble. The heart sounds were quite closed in all areas, but not strong. The back had resumed its normal outline. The bowels had operated four times, once with a little blood. He felt quite comfortable, but was drowsy. On the 19th the pulse was 84 and the temperature was 99°. The swelling of the head had quite changed from where it was on the 18th. The right eye was open, and the left now closed. The swelling had travelled down the back of the head to the neck, and down the face on the right side to the ear, and on the left side to the zygoma. There were a few new spots of purpura over the legs about the knee-joints. The heart gave a slight systolic bruit over the apex. On the 20th the face was still swollen, especially over the cheeks and downwards. The right knee could now be bent slightly. The motions were dark, pea-soupy, with a little blood. He was very hungry. The pulse was still rapid. On the 21st he was much better. There was practically no swelling anywhere except on the left cheek at the angle of the lower jaw. He was feeling very well. The pulse was about 60 per minute, rather irregular, and intermittent. He had only one motion and it was more normal. The right leg was quite better. On the 23rd the stools were formed. The patient was very hungry. He was allowed a little ground rice and jelly. There was still a slight systolic murmur. The urine was very much clearer and there was no albumin. On the 25th the patient was improving. There was some dysentery yesterday, but it has ceased. There was no complaint of any kind except hunger. The improvement continued and he was able to sit up a little by the end of the month. He was advised to continue calomel and salol as disinfectants to the bowel and to prevent recurrence. This he did, and though he has at times felt out of sorts and bilious there has been no outbreak of the old symptoms during the last 14 months.

His personal history contains nothing of importance bearing on his symptoms. He was born in Australia. He had been subject to attacks of biliousness and was operated on for enlarged tonsils two and a half years ago. He was also circumcised, and at that time had an erysipelatous rash all over his body and was seriously ill. He had just then recovered from measles. His father and mother are alive and healthy. There was no history of any blood disease on either side.

This is the second case of angioneurotic œdema associated with purpura which I have met with, the first case[1] being less marked in its distribution and severity. The coexistence of these two symptoms, for one can hardly class them as distinct diseases, is mentioned by Butler,[2] and Osler[3] thinks that both may depend on "some poison—an alkaloid—possibly the result of some faulty chylopoietic metabolism, which in varying doses in different constitutions excites in one urticaria, in a second peliosis rheumatica, and in a third

[1] Don: The Practitioner, June, 1908.
[2] Butler's Diagnostics of Internal Medicine.
[3] Osler: American Journal of Medical Science.

a fatal form of purpura." Hyde and Montgomery[4] classify the purpuras among the hæmorrhages and angioneurotic œdema among the hypertrophies. Holt[5] includes the purpuras among blood diseases. Whatever classification is adapted the explanation given by Osler and others best fits in with the observed phenomena. There is nothing to support a vaso-motor neurosis. The swellings spread more like erysipelas or a transient cellulitis, the inflammatory adjuncts of heat and pain being often notably absent. Perrin[6] thinks that the toxins in the blood may so alter the walls of the vessels as to produce a blood stasis, with or without rupture, but if this were the only factor one would expect the condition to be more generalised. It is much more likely that the toxins act as general poisons, while the stasis is due to bacterial infection of the walls with thrombosis and rupture,[7] which would be more likely to occur in the slower circulation within the vessels of the extremities. This explanation would be supported by the pain which occurred in the right heel of this case two days before the œdema was observed, and is also quite compatible with drug eruptions, where the continued exhibition of the drug would so lower the vitality of the tissues as to allow of localised infections by toxin-producing microbes. It is extremely difficult to be certain from blood cultures that the organisms cultivated are really got from the blood, and more difficult still to exclude blood infection when no bacteria are grown. In cases of purpura and localised œdema there has been found a great increase of leucocytes, especially the polymorphonuclear cells.

The treatment varies according to the site of the infection. All inflammatory conditions must be treated locally as far as possible, such as conjunctivitis, rhinitis, tonsillitis, and pharyngitis. In acute œdema following any of these diseases surgical interference should rarely be necessary except where the air-passages are obstructed. In such cases adrenalin locally might give some relief. In those cases where the primary seat is in the bowel salol, ichthyol, calomel, and other antiseptics, with general tonics, are most likely to be useful, and as the symptoms of purpura and œdema are apt to recur periodically, as we should expect if the bowel condition is not treated or if the treatment is stopped too soon, these drugs should be continued for some months after all symptoms have disappeared. Surgical interference should rarely be necessary as the œdema of the bowel is transient, and there is no tendency to gangrene, but if the collapse with fæcal vomiting is extreme an opening into the bowel above the swelling should give prompt relief. In any case the extra risk is from the anæsthetic only. Dieting in such cases would seem to be of supreme importance, and should be such as to produce little residue, and to be easily assimilated. Rest in bed should be absolute as heart symptoms are apt to develop. Hæmorrhages into a cavity might lead to fatal collapse. Whether any vaccine might do good is rather uncertain. My own experience with vaccines has not been very encouraging. The causative organism might be isolated by the agglutinative test with the patient's blood-serum. Such vaccines were found harmful in some of Bruce's[8] mania cases and ineffective in others.

Dundee.

ANTI-TYPHOID VACCINATION WITH ATTENUATED LIVE CULTURES.

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THE introduction of typhoid vaccines which have proved to be of practical importance is due to Wright in England and to Pfeiffer and Kolle in Germany. These vaccines consist of killed typhoid cultures—broth cultures as regards Wright's vaccine; emulsion of agar cultures as regards Kolle's vaccine. Leishmann has made the important observation that the lower the temperature at which the cultures are killed the more powerful is the vaccine.

It is well known that in the lower animals, such as rabbits, the use of dead cultures for immunising purposes is far less efficacious than using live cultures, provided the live cultures be inoculated with certain precautions. In man it has been proved by Haffkine in cholera vaccination, and by Strong and Kolle in plague vaccination that the degree of immunisation obtained by using avirulent live cultures is far greater than that obtained by using dead cultures; the same result was arrived at by me as regards typhoid fever.

Preparation of the live typhoid vaccine.—I now prepare the vaccine in the following manner. Tubes containing 10 cubic centimetres of broth are each inoculated with two loopfuls of a 48-hours old agar culture of a typhoid strain which has been kept alive in the laboratory for three years and is now avirulent.[1] The broth tubes are kept in the incubator at 35° C. for 24 hours; they are then placed in a water-bath at a constant temperature of 50° C. for one hour; after which the vaccine is ready for use. I always use it the same day I have prepared it. In this vaccine the typhoid bacilli are still alive as is proved by inoculating agar tubes in which they grow fairly well.

Effects of vaccination with live typhoid vaccine.—The objection to the use of live cultures for inoculation is that they may give rise to serious symptoms and may possibly transform the inoculated persons into typhoid carriers. The typhoid vaccine prepared according to the method I have described is, however, in my experience, devoid of any serious risk. Before using it on a fairly extensive scale, I inoculated (four years ago) myself and 15 of my clinic and laboratory attendants and servants who volunteered for the experiment. It is to be noted that the vaccine at that time was prepared by heating at 50° C. virulent cultures of typhoid and not avirulent ones as I do at the present time. None of us experienced any severe symptom and none of us has become a typhoid carrier. In one case after four days from the first inoculation a fever developed which lasted five days; the microscopical examination of the blood proved it, however, to be of malarial origin.

The inoculation of the usual doses of live vaccine (½, 1, 1½ cubic centimetres) is followed by the local and general reaction, as is the case with dead vaccine (Wright's vaccine); in some cases the reaction is somewhat more marked. After three or four hours the region of the arm where the inoculation has been made becomes painful and red, and fever supervenes which generally does not last more than 24 hours and does not incapacitate one for work. In a certain number of cases (about 20 per cent.) the blood, after a few days, shows presence of agglutinins, whereas, personally, I have never seen any distinct production of agglutinins in man when using vaccines consisting of killed cultures. The director of the Chemical Laboratory, Professor Browning, kindly submitted himself to repeated inoculations of the live vaccine; he received 1 cubic centimetre of live vaccine regularly once a week for several weeks. The first inoculation caused a little local reaction and a slight degree of fever; the second inoculation induced a slighter local and general reaction; the third, fourth, and fifth inoculations were practically not followed by any reaction either local or general. After the sixth and seventh the local reaction was very severe, and Professor Browning experienced a general malaise, though no fever was present. I stopped the inoculations for three weeks, after which he had another one which did not give rise to any local or general reaction. The blood was regularly examined for agglutinins. These began to appear three days after the third inoculation (1 in 20 positive, 1 in 40 bacilli immobilised, but no clumps). It reached its maximum four days after the fourth inoculation (agglutination limit, 40). After the fifth inoculation the agglutination limit was only 20, and after the sixth and seventh hardly 10. It increased again to 20 after the eighth inoculation.

Experiments in animals.—In rabbits and monkeys the inoculation of a single dose of live vaccine (2 cubic centimetres) induces the elaboration of a larger amount of agglutinins and immune bodies than the inoculation of the same dose of dead cultures. Very often a rabbit becomes highly immunised 8 to 15 days after receiving one single dose of live vaccine, while it may take several inoculations of dead vaccine to induce the same degree of immunity.

[4] Hyde and Montgomery: Diseases of the Skin.
[5] Holt: Diseases of Infancy and Children.
[6] Perrin: THE LANCET, 1899.
[7] Watson Cheyne: Brit. Med. Jour., Sept. 1st, 1883.
[8] Bruce: Edinburgh Medical Journal, February and March, 1908.

[1] Previously I used peptone-water cultures, as the inoculation of such cultures is somewhat less painful than broth cultures.

Comparative results in man.—These are collected in the following table:—

Method of vaccination.	Number of persons inoculated.	Cases of typhoid fever among the inoculated.	Observations (March, 1909).
Both inoculations with dead vaccine (Wright).	106	2 (no death).	40 were inoculated 18 months ago; 40 one year ago; and the remaining 26 three months ago.
Both inoculations with live vaccine.	90	None.	14 were inoculated four years ago; 20 two years ago; 30 one year ago; and the remaining 26 three months ago.
First inoculation with dead vaccine (Wright). Second inoculation with live vaccine.	220	None.	150 were inoculated 18 months ago; 45 one year ago; and the remaining 25 three months ago.

The results collected in this table tend to show that the inoculation of live vaccine gives a higher degree of immunity than the use of dead cultures. It must be noted that typhoid fever is extremely common in Ceylon. At the time of writing (July 16th) none of the persons inoculated with live vaccine have contracted typhoid fever, while one more case has occurred among those inoculated with dead vaccine.

Inoculation with mixed vaccines.—Several years ago (see *Zeitschrift für Hygiene*, 1903), while working in Bonn under the direction of Professor Kruse, I proved that by inoculating an animal with two different bacteria at the same time the blood of the inoculated animals produced agglutinins and immune bodies for both, and that the amount of agglutinins and immune bodies for each germ was about the same as in those animals inoculated with one germ only. For example, inoculating a rabbit at the same time with B. typhosus and B. pseudodysentericus (Kruse), the blood of the rabbit developed the same amount of agglutinins and immune bodies for the typhoid bacillus as control rabbits inoculated with typhoid only, and control animals inoculated with pseudodysentery only. I demonstrated that even inoculating a rabbit with three different micro-organisms (B. typhosus, B. pseudodysentericus (Kruse), and a strain of B. coli communis) the amount of agglutinins and protective bodies elaborated for each germ was nearly the same as in animals respectively inoculated with one germ only. Moreover, I was able to confirm in the course of those experiments that when immunisation is obtained by a single inoculation—provided a certain minimum dose be given—the amount of agglutinins and immune bodies elaborated by the inoculated animals is not in proportion to the amount of culture inoculated. A series of rabbits inoculated with 1 cubic centimetre of typhoid culture will give the same average agglutination limit and immunisation as a series of rabbits inoculated with 2 cubic centimetres. Fredberger and Moreschi have demonstrated that provided a certain minimum dose be given the degree of immunisation is the same as that obtained by a dose 400 times larger. These experiments tend to show that the standardisation of vaccines by the count of the germs, as introduced by Wright, is not absolutely necessary, though certainly advisable wherever practicable.

I have tried mixed vaccines in man: typhoid-dysentery; typhoid-paratyphoid; typhoid-paratyphoid-dysentery. The vaccines are prepared by heating to 60° or 55° C. (dead vaccines) or 50° C. (live vaccines) for one hour broth cultures of B. typhosus, broth cultures of B. dysentericus (Kruse-Shiga), broth cultures of B. paratyphosus A and paratyphosus B. These cultures are then mixed together in certain proportions in sterile Petri dishes, and the mixed vaccine is ready for use.

The mixed typhoid-paratyphoid vaccine consists of two parts of typhoid, one of paratyphoid A and one of paratyphoid B. The mixed typhoid-dysentery vaccine consists of one part typhoid and one part dysentery (Kruse-Shiga); but other mixed vaccines may be prepared and used, for instance, a mixed Kruse-Shiga and Flexner vaccine. Of these vaccines, I now generally inoculate ½ cubic centimetre of dead vaccine the first time, and after a week or 15 days 1 cubic centimetre of live vaccine.

Conclusions.—1. The use in man of the live typhoid vaccine prepared according to the method I have described (heating of non-virulent broth cultures at 50° C.) is not dangerous. It probably induces a higher degree of immunisation than the ordinary vaccines consisting of dead cultures. 2. Though both inoculations may consist of live vaccine without danger, the routine method of anti-typhoid vaccination which I recommend, and which I now use, is the inoculation of ½ cubic centimetre usual dead vaccine (Wright) followed in a week's time by the inoculation of 1 cubic centimetre of live vaccine. 3. Mixed vaccines may be prepared by using dead or live attenuated cultures of typhoid and dysentery, or typhoid, paratyphoid, and dysentery. The inoculation of mixed vaccines may be of advantage in some cases, but the subject requires further investigation as regards its efficacy in man.

Reference.—Castellani: Journal of the Ceylon Branch of the British Medical Association, 1909.

Colombo.

THE RESULTS OF THE USE OF FIBROLYSIN IN CASES OF FIBROUS CONTRACTION.

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THE action of fibrolysin seems to confine itself to conditions having a pathological basis and fibrosis following inflammatory processes, and from the effect on various lesions and deformities that arise from contraction of fibrous tissue, clinical experience, as shown by the following series of cases, has demonstrated that fibrolysin is a valuable and efficacious addition to recent therapeutic agents. Early in the past year (1908), my attention having been directed to the use of fibrolysin by reports of its usefulness in cases of cicatricial contractions, I began using the drug.[1] Notable improvement has taken place in all cases treated, and in some I have been surprised at the progress made, when the marked deformity and incapacity of movement, as well as the long duration of the trouble, are taken into consideration. The series includes Dupuytren's contraction, stricture of the urethra, chronic rheumatoid arthritis, stricture of the rectum, gastric adhesions, and fibrous ankylosis following gonorrhœal arthritis. Not only has there been local improvement, but in every case there has been considerable improvement in the general health. Patients have expressed themselves as feeling better and stronger, both mentally and physically, after treatment than they were before it was started. In all cases the method adopted for the administration of the drug was by intramuscular injection into the gluteal region. By this means pain and irritation by the needle were avoided and absorption was fairly rapid. Intravenous injection has been advocated by Mendel chiefly for the sake of rapidity of action, but of this method I have had no experience, as I have been satisfied with the somewhat slower, and I think safer, intramuscular method. Subcutaneous injection of comparatively large quantities of fluid, as 2 cubic centimetres, caused inconvenience and absorption was very slow, a swelling at the site of injection remaining for two days when the region of the forearm was selected. For subcutaneous injection the most favourable site is between the shoulders. Injection into the neighbourhood of the lesions has also been practised; but here, too, the objection was the swelling and slow absorption. Two of the patients experienced a slight febrile reaction (100° F.) after the first three treatments, which passed off before the next day, and one complained of thirst for some hours after each injection. Within 15 minutes an odour of garlic could be detected in the breath and a peculiar bitter taste has been described which passed off in a few hours. There has never been any trouble locally and all treatments have been conducted with strict antiseptic precautions. The following cases have been selected to illustrate the wide-reaching usefulness of fibrolysin.

CASE 1. *Stricture of the rectum.*—A married woman, aged 30 years, had suffered for two years from constipation, pain

[1] Fibrolysin is put up by E. Merck, Darmstadt, in aqueous solution of 15 per cent. strength in sterile glass ampullæ, each containing 2·3 cubic centimetres (ℳ 40 nearly). This represents 0·2 gramme (grains iii.) of pure thiosinamin.

in the lumbar region, sensation of dragging in the rectum, and pain and straining at stool. The bowels never acted without purgatives. Examination of the rectum disclosed a firm thick band high up in the bowel. The patient gave a history of frequent attacks of diarrhœa with blood 10 years ago. There was no history of syphilis. More than six months ago she underwent an operation for external and internal hæmorrhoids without relief to the symptoms. Dilatation of the stricture had been done twice a week and this caused much pain but gave no relief. After treatment for four weeks by injections of fibrolysin every second day and occasional passage of a dilator the bowels have acted naturally without drugs, pain and discomfort have disappeared, and the instrument does not cause much inconvenience. The patient has gained weight and now describes living as a pleasure.

CASE 3. *Dupuytren's contraction.*—A man, aged 64 years, had had contraction of the palmar fascia in both hands for 20 years. The contraction was so marked in the right hand that the index and middle fingers were fixed closely to the palm and a pen handle could be with difficulty passed between the contracted fingers and the palmar surface. The bands of fascia stood up as hard, tight cords which were quite inelastic. Treatment three times a week resulted in softening of the hands and some elasticity being imparted to the cords. Passive movement and massage were also employed, and after 30 injections he can now extend and flex the fingers almost to the normal extent and the stiffness and swelling of the hands have disappeared, while the fascial bands have become soft and elastic.

CASE 3. *Chronic rheumatoid arthritis.*—A married woman, aged 47 years, for several years had suffered from this complaint. She was unable to stand on account of the pains in the knees, which could not be flexed without pain, and grating and swelling were marked. She had been practically bedridden for 12 months prior to the treatment. Various remedies and methods had been employed with slight temporary relief. After 12 injections the pain was much lessened and creaking and swelling disappeared, while the knees could be flexed voluntarily. After 30 injections had been given the pains also disappeared and she was able to walk about her room without artificial aid. She had previously used crutches for a fortnight. Her general condition was much improved. During the last five weeks treatment has been given once a week and she now can walk slowly with little discomfort, and she states that each day she feels herself becoming stronger in the knees.

CASE 4. *Stricture of the urethra.*—A man, aged 46 years, had suffered from double stricture for 20 years. Eight years ago urethrotomy had been performed without good result. False passages had been made by catheterisations and cicatrices could be easily felt. No. 5 (English) with difficulty was passed through the smaller stricture. Injections of fibrolysin were given twice a week and gradual dilatation was practised. The anterior stricture allowed passage of No. 12 at the end of three weeks, and two weeks later No. 12 was passed through both strictures. Frequency of micturition has been relieved and the patient has gained 12 pounds in weight. This patient had been treated energetically for syphilitic orchitis for some months ten years ago without avail, and one testicle had been removed. At the beginning of treatment by fibrolysin there was a nodular gummatous swelling in the remaining testicle. This became soft and has now almost disappeared.

CASE 5. *Gastric adhesion.*—A married woman, aged 29 years, suffered for five years from vomiting and pains in the left hypochondrium. She was anæmic and had vomited blood on several occasions. A large meal increased the pain and movements like stretching or reaching caused pain in the left side. Examination of the gastric contents gave slight hyperchlorhydria. Treatment by fibrolysin injections and massage of the stomach after a bulky meal for three weeks resulted in disappearance of the pains with increase in appetite and improvement in the anæmic condition.

CASE 6. *Fibrous adhesions of the knee-joint.*—A man, aged 29 years, had gonorrhœa nine months before, complicated by synovitis of the right knee, which remained stiff, painful, and swollen. Massage, hot air, and general treatment had no good effect. Fibrolysin was injected for two months and massage and passive movements were applied to the joint. The thickening round the joint became lessened and movement has been restored, though the knee cannot yet be fully flexed. Pain disappeared after six injections.

From the foregoing it will be seen that fibrolysin is apparently indicated in any pathological state having fibrosis as its basis. The softening of the fibrous tissue allows of manipulation and stretching. The injection of the drug *of itself* will *not* result in local benefit in my opinion. It should be *supplemented* by massage and other physical measures. The remarkable general improvement in health in all cases is noteworthy, as well as the advantages which patients may derive in cases that have hitherto been regarded as hopeless. Absorption is fairly rapid after intramuscular injection in adults of middle age, and in one case, that of a man aged 77 years, the taste of the drug could be detected a quarter of an hour after injection. In this case, too, the skin became soft and pliable and the health much improved. Sufficient time has not elapsed to allow one to form an estimate of the permanency or otherwise of the good results obtained. In the case of urethral stricture so far there has been no tendency to recontraction. I purpose keeping cases under observation so that later a further communication may be made on the subject.

Melbourne.

AN UNUSUAL TYPE OF STOMATITIS IN AN INFANT.

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THE following case of stomatitis occurring in an infant of four months presents unusual features and may be worth recording. Henoch in his lectures on Diseases of Children mentions two varieties of severe stomatitis—ulcerative and gangrenous. The former is nearly always associated with teething; the latter usually occurs as a sequel to one of the acute infectious diseases amidst unhygienic surroundings. In both cases the mucous membrane is first involved; sometimes the ulcerative type develops into the more severe, and usually fatal, gangrenous type.

In the present case the age of the patient—four months—is unusual; the severer types of stomatitis occur especially between the ages of two and 12 years.[1] Primary dentition had not as yet set in; there was no history of any acute infectious disease or of mercurialism; the surroundings were not such as to call for censure. The case occurred on a farm and there was no history of illness among the cattle.[2] The child was bottle-fed and had no evidence of rickets or scurvy; he was anæmic but was well grown and sturdy. The acute onset and the great local reaction showed the infection, whatever its nature, to have been local and not constitutional in origin. Unfortunately I was not so placed as to be able to take cultures of any micro-organisms which may have been present.

The patient, aged four months, was seen on April 30th, 1908. The history as obtained was that on the previous day (the 29th) he had been ill or very bad tempered all day; in the evening it was noticed that the cheek was a little swollen; by the next morning (the 30th) this swelling had undergone considerable increase in size. On examination the left cheek was seen to be very swollen and the skin was shiny; the swelling was not localised. The cheek was very hard and tense, no pitting could be obtained, it was extremely tender, and a slight touch produced a shriek. The inside of the cheek was dusky, and about half-way back on a level with the alveolar border of the lower jaw there was a small patch of about the size of a No. 4 shot, dusky grey in colour, which had the appearance of threatening gangrene. There was no specific odour attached to the breath, but it was foul. The glands in the neck on that side were enlarged and tender; any lateral movement of the head produced pain. The skin of the neck was œdematous as also was that of the scalp, especially over the occipital region. The temperature was 104·6° F. and the pulse was uncountable (probably 160). The diagnosis arrived at was that it was probably a case of early gangrenous stomatitis. Surgical interference was mooted but was refused. Accordingly

[1] Goodhart and Still: Diseases of Children.
[2] Erichsen's System of Surgery, tenth edition, vol. i.

I ordered a lotion[3] for frequent application to the interior of the cheek, giving at the same time two grains of bromide of potassium every two hours for six hours, subsequently every four hours. On the next day the cheek was not so swollen or tense, but the eye was closed by the œdematous lids. The inside of the cheek had lost its dusky colour; the dusky grey spot had disappeared, its site being occupied by a small zone of hyperæmia. The breath was not so foul. The cheek could bear a moderate amount of manipulation; the glands in the neck were not so tender, and the œdema of the scalp was not so marked. A slight cough was present but there were no physical signs. The temperature was 103°. The child was taking a little milk. On May 2nd the temperature was normal, the cheek not so swollen, the œdema of the eyelids was disappearing, while that of the neck and scalp had gone. The child was taking his food well and was rapidly approaching convalescence. By May 4th the external appearance of the cheek was like a chronic superficial abscess pointing; there was a localised swelling of about the size of a hazel-nut, the skin over it being congested, but the swelling was solid in character. The child was taking its food well and sleeping well. The swelling gradually diminished in size, and by May 7th the cheek was normal. The child has subsequently remained in good health.

Recovery occurring without any loss of tissue negatives the view that it was a case of gangrenous stomatitis, and I have been unable to find any reference to cases of threatening gangrenous stomatitis undergoing spontaneous cure in the literature at my disposal. There was no evidence of its being a case of ulcerative stomatitis. When first seen it seemed very improbable that such a young child would make a perfect recovery from such an acute infection and in such a short space of time.

Guernsey.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF SUPPRESSION OF URINE SIMULATING CALCULUS ANURIA.

BY PRESTON KING, M.D. CANTAB.,
HONORARY PHYSICIAN TO THE ROYAL MINERAL WATER HOSPITAL, BATH.

IN recording this case I wish in the first place to thank Dr. J. Lindsay for his clinical notes and Dr. R. Waterhouse for his help at the post-mortem examination and in the preparation of the microscope slides.

The patient, a spare, healthy looking man, aged 58 years, was admitted into the Royal Mineral Water Hospital, Bath, on August 21st, 1908. He was suffering from "rheumatism" in the wrist and pain and stiffness in the right hip, the latter being the result of an accident 12 months before. The heart and lungs were normal, and the urine had a specific gravity of 1015 and was free from albumin. Nothing occurred to call special attention to his case until he had been in the hospital a month. Then on Sept. 22nd he had a sudden attack of epigastric pain, followed by vomiting. On the next morning he seemed much better and, except for a little tenderness on palpation of the left kidney, nothing abnormal could be found, but he said that he had passed no urine since the attack of pain on the previous afternoon. The bladder seemed empty and this condition was confirmed by the passing of a catheter. More careful inquiries were now made into his past history, but beyond remembering that about ten years ago he had for a few weeks an attack of frequent micturition at a time "when his nerves were out of order," he could tell us nothing to throw light upon his case. He had had no urinary troubles since and at no time had there been any symptoms pointing to stone. From this time onward, until his death on Sept. 29th, there was an absolute suppression of urine.

The tenderness over the left kidney seemed to point to the fact that there, from whatever cause, was the seat of the trouble. Was that kidney blocked by a calculus? And, if so, what was the other kidney doing? Were its functions suspended through reflex nervous agencies? Or was it non-existent? The usual treatment for suppression having been tried without success, I asked Mr. R. J. H. Scott to see the patient with me with a view to operation. This he kindly did, but after consultation it was decided not to operate, and the event proved that surgery would only have hastened the natural issue. There was a little muscular twitching the day before the patient died, and he was sick again, but except for this there had been an entire absence of symptoms, and I had found it very difficult to make his friends understand the serious condition he was in. There was no uræmic smell in his breath or skin, and his mind remained perfectly clear up to within five hours of his death.

At the post-mortem examination the bladder was empty and contracted. The right kidney was, for all practical purposes, absent, being represented by a small thin-walled irregular cyst containing some clear fluid, and its ureter was a solid cord. The left kidney was enlarged, weighing seven ounces, and there were many small cysts on its surface containing a turbid yellow fluid. On section it was engorged, the capsule stripped readily, and the pelvis was injected. There was no calculus or other form of obstruction either in the kidney or ureter, which was patent throughout. Microscopically in this kidney the epithelial cells of the convoluted tubes were small and misshapen, their protoplasm granular, and their nuclei indistinct; many tubules contained coagulated material; the glomeruli showed no noteworthy changes. There was much small-celled infiltration around the blood-vessels and an increase of connective tissue in the medulla.

This case is of interest as an instance of non-obstructive suppression occurring in a man with only one kidney, and not followed by the usual symptoms of uræmia. If a stone had been found the case would have been one of calculus anuria, and there would have been nothing especially remarkable about it. In calculus anuria a satisfactory explanation for the absence of uræmic symptoms has, I believe, not been given. Fagge suggested that this might be due to the still healthy kidney changing the chemical constitution of the waste products, and rendering them incapable of producing uræmia, notwithstanding that they are retained in the body. But, however this may be with a healthy kidney, it would hardly seem to explain the absence of symptoms in the present case where the only kidney was diseased.

Bath.

A CASE OF APPENDICITIS PRESENTING SOMEWHAT UNUSUAL FEATURES.

BY DAVID LIGAT, F.R.C.S. ENG.

A MAN, aged 40 years, a farm labourer, felt "out of sorts" on July 10th. The next day he felt rather better, but had to give up work on the 12th, when I first saw him. I found him in bed. He was moderately jaundiced. He had not felt sick nor had he vomited. He was not constipated. The fæces were of normal colour. The urine contained bile pigment. The tongue was dry and furred. He denied ever having had previous abdominal pain. The pulse was 120 per minute and the temperature was 102° F. There were tenderness and rigidity over the region of the appendix with the maximum point of tenderness midway between the crest of the ilium and the costal margin and to the outer side of the ascending colon. Rectal examination revealed slight tenderness on pressure upwards and to the right. I performed an immediate operation and found the parts in the following condition.

The appendix was about 3½ inches in length and ran vertically upwards on the outer aspect of the ascending colon. It was straight. Its distal third was gangrenous. Pouting from the antimesenteric border of the gangrenous portion was a foreign body. This afterwards proved to be a true enterolith of oval shape and of the size of a bean, quite hard, and giving a metallic ring when allowed to fall on a plate. The meso-appendix was also gangrenous and its vessels were thrombosed. About a teaspoonful of offensive chocolate-coloured pus escaped. There were no limiting adhesions. The appendix and its mesentery were removed and the cavity drained. The pulse and temperature did not fall after operation. There was no general peritonitis, the abdomen

[3] R. Chlorate of potash, grs. x.; gly. acid bor., ʒ iss.; aq. ad., ℥ i.; m. f. lotio.

remaining flat and soft, and the bowels acting well to calomel on the third day. The appendix region drained well. The patient had no nausea nor was he sick. The jaundice became more intense for the four days following operation, but was decidedly less during the next two days. The tongue remained dry and furred. There was some tenderness over the hepatic area. There were no rigors but the patient was frequently drenched in sweat, the temperature then falling for a short time to 96°, the pulse remaining between 120 and 125. On the fifth day after operation the pulse was 135 and the temperature 103°. The patient died on the following day, six days after operation and the tenth day of the attack. Unfortunately a post-mortem examination was not obtainable, but there can be little doubt that death was due to infective pylephlebitis.

The following points seem of interest:—1. That although the stone, of relatively considerable size, must have been situated in the appendix for years the patient had never had the sightest abdominal pain in the region of the appendix. 2. That although the pathological changes actually present were so profound, the patient at no period either before or after operation was nauseated, sick, or constipated. 3. The early non-obstructive jaundice. No doubt the portal venous circulation was already infected when I first saw the case on the third day of attack. 4. The fact made apparent at operation that the vessels of the meso-appendix were thrombosed and the mesentery itself gangrenous.

Hastings.

A CASE OF TRANSIENT ATAXY FOLLOWING DIPHTHERIA.

By H. O. BUTLER, B.A., M.B., B.C. CANTAR.

THE patient was a healthy male, aged 26 years. He had complained of a painful throat the day before I saw him. I then found that his right tonsil and a large portion of the soft palate were covered with a thick greyish-black membrane. Within two hours I injected 8000 units of antitoxin, and in this short space of time I noticed that the membrane had nearly doubled its area. The next morning 2000 units more were injected. This caused rapid disappearance of the membrane at first, but after two days a fresh membrane appeared and spread with nearly the same rapidity as the first. 10,000 units were then injected, and on the following day, as I was doubtful if this was enough, 6000 units more. The membrane rapidly disappeared after this. Bacteriological examination had previously shown that organisms morphologically resembling diphtheria bacilli were present. From the fourth to the eighteenth days vomiting shortly after food and most marked constipation were present. A large variety of pills and enemata had next to no effect; and, rightly or wrongly, the case gave me the idea of a paralysis of a portion at any rate of the small bowel being present. After the eighteenth day, however, this gradually passed off. Five weeks after the onset of the illness he complained of difficulty in swallowing. This, however, was never marked and persisted for about a fortnight, being due to a soft palate paralysis. About this time—that is, about seven weeks after the onset—the patient began to complain of numbness and tingling sensations in the feet, and I found that his gait was typically ataxic. The knee-jerk was present at this time. He rapidly became worse and after seven days was quite unable to do anything by himself owing to the ataxy and loss of muscular sense. It was impossible for him to stand or walk. He could not feed himself, and if I offered to shake hands he would seize the back of his head or his nose. When it was dark and he was unable to see, he was absolutely and completely helpless. This state lasted for a month and then gradually cleared up in another three weeks, with the exception of the right arm which he complained he was unable to use properly. On investigation, however, this appeared to be due to stiffness in the shoulder-joint which lasted on and off for about five months. After the ataxy had persisted for two weeks the knee-jerks disappeared and remained absent for another two weeks and then gradually returned. At no time were there ever any eye changes or wasting of any muscles, and, with the exception of the before mentioned slight difficulty in swallowing and constipation, no motor paralysis. For a few days a slight retardation of painful stimuli on the outer sides of the legs was noticed, but no areas of anæsthesia were found. All this time the patient complained of numbness and tingling in the feet and hands.

Treatment consisted solely in giving a mixture containing strychnine, which was started at the onset of the illness and continued steadily. Whether the large amount of antitoxin given had anything to do with the condition it is not for me to say, but I have noticed an ataxic gait in children before now who have had not more than 6000 units.

The pathology of the condition, I should fancy, is simple: a peripheral neuritis of the afferent nerves accounts for all the symptoms. Dr. Charles R. Box in Vol. XXVIII. of St. Thomas's Hospital Reports gives an excellent account of a typical case, and he gives the following list of references to cases of ataxia following diphtheria, which may be of use:—

Grainger Stewart: Edinburgh Medical Journal, vol. xv., 1870, p. 988. Foot: Dublin Quarterly Journal Medical Science, vol. liv., 1872, p. 176. Kloman: Philadelphia Medical Transactions, vol. iii., 1872-73, p. 183. Kloman: THE LANCET, Dec. 14th, 1872, p. 871. Rumpf: Ataxie nach Diphtheritis, Deutsches Archiv für Klinische Medicin, Band xx., 1877, p. 120. Schulz: Ataxie nach Diphtheritis, ibid., Band xxiii., p. 360. Rudisch and Jacoby: Archives of Medicine, New York, vol. viii., p. 249. Berwald: Berliner Klinische Wochenschrift, Jahr xxi., 1884, p. 796. Buzzard: Harveian Lectures, 1885. Leval-Picquichef: Des Pseudotabes, Lille, 1885, p. 143. Mackenzie: St. Thomas's Hospital Reports, vol. xxi. Haussman: Virchow's Archiv, Band cxv., 1889, p. 534. Morton Prince: Boston Medical and Surgical Journal, 1889. Mott: International Clinics, 1896. Trevelyan: THE LANCET, Nov. 24th, 1900, p. 1482.

Sutton Court-road, W.

A CASE OF ACUTE PULMONARY ŒDEMA.

By CHARLES E. DENNING, L.R.C.P. & S. IREL., L.M.

IN a paper in THE LANCET of Dec. 7th, 1907, p. 1606, Dr. Leonard Williams drew attention to the condition known as acute pulmonary œdema and elicited reports of several cases, including one by myself which appeared in THE LANCET of July 18th, 1908, p. 158. The following notes relate to another case of this important and interesting condition that has recently come under my care:—

On the afternoon of Feb. 24th I was called to see a man who had arrived that day in Epping. When I visited him, about 5.45 P.M., he was sitting in the dining-room, feeling quite comfortable, having had tea. He explained that he had been ill for a fortnight with pleurisy followed by effusion; that he had been in bed for some days and had then been allowed to get up and to go for short walks; that the day previously his temperature was something over 100° F.; and that he had come home contrary to the wishes of the medical man in attendance upon him. His age was 43 years. I found his temperature to be 100·2°, the pulse 100, and the respirations 24, and I recommended his going to bed in order that I might make a physical examination. I remarked upon a small quantity (about three teaspoonfuls) of what looked like pus which was in a dish beside him and was informed that he had expectorated this only a few minutes before and that he had not previously seen any like it. Whilst speaking to me he began to cough and in a few minutes this cough became incessant and distressing, and he commenced to expectorate mouthfuls of a frothy fluid which seemed to flow continuously into his mouth. From a state of comfort in less than five minutes his condition became most alarming. He had jumped to his feet and, leaning both hands on the table, was spitting out a stream of frothy fluid into a basin in front of him, and he appeared to be almost suffocating. I gave him some brandy and in 15 minutes from the commencement of the attack I injected 1-30th of a grain of strychnine. The coughing and expectoration continuing, in another 15 minutes I gave a second injection of strychnine (1-30th of a grain), atropine (1-100th of a grain), and also some champagne. In five minutes more the attack was over and the patient now lay back in a chair utterly exhausted, collapsed, and cyanosed. The respirations were 40 and the pulse was 120. I feared that he would die at any moment. However, with further stimulants and another injection of strychnine and atropine he rallied, although for some hours his condition was one of extreme exhaustion, the respirations remaining at 40 and the pulse at 120.

In the 35 minutes during which the attack lasted the man had expectorated about a pint of pink-coloured frothy serum, which later separated into a pink fluid beneath a thick layer of minute froth just like yeast. In about an hour the cough returned, although this time it was of quite a

different character, and in a few minutes he had expectorated four ounces of pus, similar to that which I had previously remarked upon, and during the next 24 hours over a pint was discharged. This on examination showed the presence of a large number of pneumococci. His heart sounds were normal.

The sequence of events appeared to be, first, a rupture of an empyema into a bronchus just at the time of the expectoration of the small quantity of pus. This was followed by an attack of acute pulmonary œdema, and on recovery from the shock came the free discharge of the empyema. Convalescence was uninterrupted and of no special interest.

A most interesting point appears to me to be the fact that there was no cardiac mischief present.

Epping.

Reviews and Notices of Books.

A Text-book of General Pathology for the Use of Students and Practitioners. By J. MARTIN BEATTIE, M.A. N.Z., M.D. Edin., Professor of Pathology and Bacteriology, University of Sheffield; Honorary Pathologist, Sheffield Royal Infirmary and Royal Hospital; and W. E. CARNEGIE DICKSON, M.D., B.Sc. Edin., F.R.C.P. Edin., Lecturer on Pathological Bacteriology and Senior Assistant to the Professor of Pathology in the University of Edinburgh; Assistant Pathologist, Royal Infirmary, Edinburgh. With 162 illustrations and four coloured plates from original preparations. London: Rebman, Limited. 1908. Pp. 475. Price 17*s.* 6*d.* net.

THE general plan and scope of this new text-book of pathology are based upon the teaching of the Edinburgh School, and in their preface the authors acknowledge their indebtedness to Professor W. S. Greenfield. They give as the *apologia* for their book the fact that some of the fundamental views of that school, though based upon careful experimental investigations and upon extensive experience of human morbid anatomy and histology, have not, in their view, received sufficient attention. As an example of this they refer to infarction. It must be admitted that the description of the results of vascular occlusion given in many text-books is far from satisfactory, and especially is this the case in regard to the conditions which determine the development of anæmic infarction and its relation to the hæmorrhagic variety. The account here given, as the authors admit, is not new, but is based on experiments upon the kidney and spleen in animals. It affirms that infarcts, in these organs at any rate, are at first always red, and that in small infarcts pallor supervenes in a few hours. In regard to the cause of the congestion of infarcts, the theory of reflux from the veins proposed by Cohnheim is negatived, and the view of Litten and others that it is the result of collateral blood-supply is confirmed by experimental data. As a whole, the mechanism of infarction here described appears to us to be clear and intelligible and is not obscured by theoretical speculations.

The book is divided into seven chapters and is copiously and well illustrated, for the most part by reproductions of photographs and micro-photographs of actual specimens. The coloured plates are also well executed and illustrate the microscopical appearance of various degenerations and of the blood corpuscles and blood parasites. The first chapter is devoted to the cell in health and disease and gives a clearly written and up-to-date account of the fundamental facts in regard to cytology, with special details of the normal and abnormal forms of mitotic division. Under the heading of the composition of protoplasm an outline of the recommendations of the Chemical and Physiological Societies of Great Britain in regard to the nomenclature of the proteins is given. Various cytoplasmic and nuclear changes are also briefly described. This chapter forms a useful introduction and is worthy of special commendation.

The second chapter deals with general retrogressive processes and includes accounts of the various degenerations and infiltrations as well as of necrosis, gangrene, and atrophy. These are all described in some detail and the results of recent work are incorporated. Fatty, waxy, and calcareous changes are dealt with in more detail than is usual in a book of this size and we have nothing but praise for this section of the book. The third chapter on disturbances of the circulation contains good accounts of venous obstruction, dropsy, œdema, chronic venous congestion, and thrombosis. In reference to the process of clotting, no mention is made of thrombokinase or of the possible importance of hæmagglutination in relation to thrombosis. This chapter contains the description of infarction, to which we have already referred.

The description of inflammation and repair usually forms a very good criterion for estimating the value of a text-book on general pathology, and in this connexion we may at once assert that the manner of considering these subjects in the fourth chapter is thoroughly to be commended. The description is clear and concise, and the various factors involved are differentiated and considered in an admirably lucid style. The fifth chapter extends to over one-quarter of the book and is devoted to progressive tissue changes, including under this heading hyperplasia, hypertrophy, tumours, and the granulomata. The consideration of the problem of tumour formation is critical and well arranged; the various theories are briefly enunciated and discussed. The classification adopted is that of Professor Adami into hylomata and lepidomata or "pulp" and "rind" tumours respectively, with their subdivisions. This classification, though ingenious and scientific, has hardly yet achieved sufficient recognition to warrant its use in a text-book intended for students and practitioners; moreover, it introduces a new nomenclature of somewhat cumbrous character. The sixth chapter deals with animal parasites, classified according to zoological principles. The descriptions are adequate and the illustrations are clear and abundant. The last chapter contains within comparatively small compass a useful *résumé* of the general principles of immunity and of the theories advanced to explain it.

The text-book is one which should prove of great value to students and practitioners, for it is concise without being obscure, and gives reliable descriptions of the main data of general pathology. It would be well in a future edition to include more discussion of the phenomena and mechanism of fever.

The Criminal Responsibility of Lunatics. By HEINRICH OPPENHEIMER, M.D., LL.D., &c. London: Sweet and Maxwell, Limited. 1909. Pp. 275. Price 10*s.* 6*d.*

THE problem of the criminal liability of persons of unsound mind has passed through several phases. For centuries none but the grossest forms of insanity were recognised as excusing the patient from the legal consequences of some delinquency. As the barbarism of the Middle Ages has in part passed away so has the position of the criminal lunatic ameliorated, until unhappily, under the influence of certain schools of psychology, some have come to regard the criminal as insane because he is criminal. The scandal, happily comparatively rare in this country, which results when experts on identically the same subject are found to assume diametrically opposite positions is a grave one and calls for much reflection on the part of the medical profession. Dr. Oppenheimer usefully reminds us that the witness who proclaims as scientific facts certain ephemeral hypotheses, however ingenious they may be, merely brings into discredit the profession which he is for the moment representing. The medical man may remember that much of the treatment which is practised in

up-to-date asylums is at least founded upon the hypothesis that the lunatic in most cases is capable of regulating his conduct, that is, that he knows his own likes and dislikes, is aware of the rules and regulations of the institution in which he is lodged, and where those rules clash with his personal predilections he is capable of shaping his conduct to accord with the rules rather than with his wishes. Dr. Oppenheimer argues that it is too transparent a sophism to require serious confutation if it is claimed that the insane mind is capable of being checked by the fear of such disciplinary sanctions but not by the threat of those of the criminal law.

To decide the question of the responsibility of an insane person, so far as hospital practice is concerned, may be easy. He is responsible or he is not, and perhaps not a single medical superintendent would, in these circumstances, hesitate to act. There are equally patients of whose responsibility even in the simple affairs of an asylum no medical superintendent would care to express any opinion at all. But place this same medical expert in the witness-box and we shall find in too many cases that the vaguest suspicion of insanity is put forward as a sufficient reason for the exemption of the accused from all the legal consequences of his acts. A witness may give it as his opinion that a person is insane, but it does not follow that that person is irresponsible for all he does, and we fear that the tendency now is, from a purely humanitarian point of view (which sometimes is mawkish as well), to suppose him irresponsible if unpleasant consequences are likely to ensue when the opposite view is taken. If, as the author puts it, it is conceded that very many acts of the insane are not insane acts at all, but spring from the same sources as those of rational beings, if it is an undisputed fact that the majority of lunatics understand the nature and quality of many of their deeds and are quite competent to distinguish right from wrong, if it is finally conceded that very frequently lunatics are quite capable of controlling their conduct, and are, moreover, influenced by fear of punishment, the case for holding them responsible, is, *pro tanto*, made out. Where all these conditions occur the lunatic's mind is amenable to the sanctions of the law. On the other hand, every criminal who can show that he has done some strange act in the past can nowadays hope, if his counsel seeks long and far enough, to find a medical man prepared to testify to his madness, of the nature, perhaps, of that wonderful clinical phenomenon, the "brain storm." In these circumstances it is, perhaps, unsafe to give *carte blanche* to the medical profession by making insanity the sole test of irresponsibility. Indeed, if a sufficiently high standard of mental health be erected, persons entirely free from mental defect would form the exception rather than the rule, and the propaganda directed towards the establishment of such a principle becomes neither reformatory nor progressive, but destructive of the fundaments of criminal justice. The tests which should in fact, so far as is possible, be applied are, firstly, whether the accused was aware of the nature and quality of the act, and secondly, if he could have refrained from it had he chosen to do so. The essential problem in truth lies in the application and findings of this second test.

In regard to moral insanity it is plain that the influences which restrain the ordinary individual from doing wrong are religious, moral, and legal. Where disease has destroyed two out of these three checks it is scarcely reasonable to remove the last barrier that stands between the criminal and the safety of society. Persons who are morally defective pass through life without conscience to restrain them and unless curbed by the hand of the law are left to the control of their appetites and passions alone, and we may then well hesitate to exempt them from criminal responsibility. Between full responsibility and complete irresponsibility there exists a scale of diminished responsibility. As there are degrees of insane obliviousness to right and wrong, degrees of self-control and degrees of insane impulse, the law ought to recognise the fact that the amount of guilt decreases in the same ratio as mental disease gains in intensity. The difficulty, however, lies in the method by which we are to penetrate the human soul and determine the precise degree of responsibility.

The book shows a large amount of erudition. The author has studied the laws of many countries, and has abstracted from them the articles bearing upon the subject of his work. In his comments and conclusions he manifests a thoroughly judicial attitude, and for the sake of his medical readers he has presented a complex subject in terms of common-sense couched in good plain English. His conclusions are likely enough to arouse considerable opposition, but that must be the condition of a controversy in which the premisses of the argument are still the subject of inquiry, if, indeed, they are capable of being known at all.

Health and Common Sense. By WOODS HUTCHINSON, M.A., M.D., Lecturer on Clinical Medicine at the New York Polyclinic; late Professor of Comparative Pathology and Embryology, University of Buffalo; Lecturer on Comparative Medicine in the Medical Graduates' College, London. London, New York, Toronto, and Melbourne: Cassell and Co. 1909. Pp. 334. Price 6*s.* net.

THIS book consists of a series of chapters dealing in popular language with matters relating to personal and domestic hygiene. It is in a sense a presentation of elementary physiological facts in a simple form with their application to the ordinary conduct of life. Dr. Woods Hutchinson writes clearly and forcibly, and his observations are practical. His style is crisp and allusive, and his illustrations or similes are to the point, and are not infrequently amusing. He is uncompromising in his exposure of common fallacies, and is particularly scathing in his denunciation of many of the popular superstitions as crystallised in aphorisms, proverbs, and saws, which he irreverently describes as "gems of senility," and again as "little more than the attempts of mediocrity and cowardice to console themselves for their lack of success." A proverb of almost any kind seems to excite him to turn and rend it, and some of the most cherished maxims of our copybook days come in for very severe handling. It is only fair to say that he gives reasons for his opposition, and that he makes a very good case for his views.

After a chapter on the ancestry of health indicating the broad outlines of the evolution of man's organisation, he exposes some diet delusions. He dismisses Professor Chittenden's work on the protein minimum diet very scornfully; he pillories what he calls the fish-phosphorus-brain theory, the prejudice against pork as an article of diet, vegetarianism, "breakfast foods," and the superiority of brown over white bread. He discusses in an interesting manner certain foods, which he classes together under the heading of "poison foods," characterised often by considerable nutritive value, but liable, especially in susceptible persons, to produce gastric irritation and even toxic symptoms, such as certain fruits, shellfish, nuts, and cheese.

The author's views on sleep, about which he writes at some length, are well expressed in the lines which he quotes:—

> "Blest be the man who first invented sleep,
> But curst be he with curses loud and deep
> Who first invented and went round advising
> That artificial cut-off, early rising."

The advice in regard to sleep is in brief to take as much as possible. Sunshine and fresh air he characterises as the real

angels in the house, and his plea for ventilation and for care in the choice of sites for house building is forcible and good. He gives advice in regard to bathing, care of the complexion and clothing, and has a chapter on the sins of the shoemaker.

Four chapters are devoted to certain special aspects of child life and education. They are eminently readable and contain many sound and original suggestions. Dr. Woods Hutchinson is a firm believer in the educational value of play for the child, both mentally and physically, and he draws an interesting picture of the ideal school. His last chapter is on the health of the middle-aged man, and is characterised by the same breezy optimism as the rest of the book. For him instinct and the general experience of mankind are safer guides than the doctrinaire rules of pseudo-scientific faddists. Sometimes, perhaps, in his enthusiasm for instinct he makes statements which are open to question—e.g., that the danger of over-eating has been enormously exaggerated; but his book should command a wide circle of readers, for he is always interesting and never abstruse and technical. It appears from a note at the beginning of the book that it was originally called "Instinct and Health," but apparently at the suggestion of the publishers this was altered to "Health and Common Sense," and perhaps the best notice we can give to the book is to express the opinion that no better title could be found.

Les Maladies du Cœur et Leur Traitement. (Diseases of the Heart and Their Treatment.) Par H. HUCHARD, Médecin de l'Hôpital Necker, Membre de l'Académie de Médecine. Paris: Librairie J. B. Baillière et Fils. 1908. Pp. 228. Price Fr. 6.

THIS book consists of nine lectures on diseases of the heart and their treatment. The subject is dealt with from a purely clinical and practical standpoint, and the dogmatic and didactic style, adorned by the literary grace of their distinguished author, renders these lectures particularly interesting and instructive. Their object is avowedly practical, and Dr. Huchard gives the results of his own ripe experience of treatment in the various forms of cardiac disease. He wishes to disprove the nihilistic views of some of the earlier French authorities, such as Brouissais, who said that from the medical standpoint they are "maladies of pure curiosity," and Sénac, who said that "their study gives the useless satisfaction of knowing better the impossibility of curing them."

In his first lecture Dr. Huchard emphasises the importance of the study of the disturbances of function, such as dyspnœa, insomnia, tachycardia, palpitation, syncope, arrhythmia, and præcordial pain, from the point of view of diagnosis and treatment. In regard to dyspnœa he differentiates a mechanical and a toxic form, the former due to simple cardiac failure with defective aeration, the latter occurring in cases of arterial degeneration and associated with defective renal activities. The prognosis and treatment in these two forms are markedly different and are carefully worked out.

In the second lecture the group of "arterial cardiopathies" is differentiated—that is, defects in the heart's action the result of arterial degenerations. Dr. Huchard describes an arterio-sclerotic form of mitral stenosis which he regards as not uncommon. He admits, however, that the physical signs are usually slight, but maintains that the symptoms are very abundant and suggestive. In regard to all these arterio-sclerotic forms of disease he urges the importance of treatment by milk regimen and diuretics, with a view to diminish the intoxication, which is the essential factor in their production as well as in the genesis of their symptoms.

The third lecture is devoted to functional diseases of the heart, and in the fourth a number of errors both of diagnosis and of treatment are detailed. This lecture is of special interest as it contains many personal observations of value, and it exposes many fallacies in regard to the treatment of heart diseases. The fifth lecture deals with the treatment of arterial cardiopathies. Four stages, each with a different line of treatment, are described: the first or arterial stage, treated by careful diet and physical measures; the second or cardio-arterial, treated by means of a milk and vegetarian diet, by nitrites, diuretics, and tonic doses of digitalis; the third or mitro-arterial stage, characterised by dilatation of the cavities and of the valvular orifices, treated by a milk diet, by theobromine, and by digitalis in larger doses; and the fourth or cardiectasic stage, treated by bleeding, by salt-free diet, and limitation of ingested fluids. The sixth lecture deals with the treatment of heart disease resulting from chronic endocarditis. In the seventh lecture Dr. Huchard develops his dictum that "the arterial cardiopathies commence by intoxication, continue by intoxication, and finish by intoxication." In the eighth and ninth lectures the mode of action of certain curative and hygienic measures is discussed.

Dr. Huchard's lectures are both suggestive and helpful, and they should be widely read, for they insist upon the importance of a careful study of symptoms as well as of physical signs in regard to the treatment of individual patients. We have already spoken of the book as dogmatic, but this has its merits.

A Compendium of Food Microscopy. By EDWY GODWIN CLAYTON, F.C.S., F.I.C. London: Baillière, Tindall, and Cox. 1909. Pp. 431. Price 10*s.* 6*d.* net.

THE value of the microscope in the examination of foods and drugs was proved in a striking way in the researches of the late Dr. Arthur Hill Hassall, who applied the instrument with considerable success to the detection of adulterants in the work of inquiry undertaken by him for this journal in the early "fifties." In committing the results to publication it should be remembered that Dr. Hassall had the advantage of the services of a skilled artist, Mr. Miller, who made the drawings which were reproduced in the reports of the now famous LANCET Analytical Sanitary Commission. Many of these were reproduced in Dr. Hassall's book on "Food: its Adulterations and the Methods for their Detection." Later Mr. Clayton, the author of the volume before us, joined Dr. Hassall in analytical practice, and therefore none could be better qualified than himself to write a revision of the microscopical portions of Dr. Hassall's work. It will soon appear to the reader that Mr. Clayton has done something more than mere revision; he has extended the application of the microscope to the examination of foods and drugs which were unknown in Dr. Hassall's time and he has therefore placed in the hands of all those concerned to maintain the purity of foods and drugs a guide which will afford them very material help in their work of fighting modern methods of sophistication. He has divided the book into four sections, the first dealing with foods derived from vegetable sources, the second with foods derived from animal sources, the third with tobacco, drugs, bitters, and colouring matters, and the fourth with water. The last has obviously involved an amount of fresh matter in view of the advances made in the application of the microscope by modern inquirers to the examination of water intended for drinking purposes. The drawings are well done and will afford a valuable source of reference to the microscopist busily engaged on questions connected with the detection of adulteration. This is a good book, for it not only pays tribute to a man who undoubtedly did pioneering work of the most valuable kind in connexion with microscopical

methods for revealing adulteration, but it encourages the further application of the microscope to similar ends.

JOURNALS AND MAGAZINES.

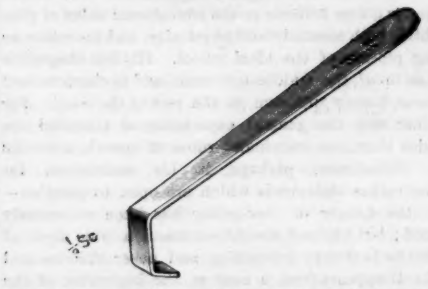
Proceedings of the Royal Society of Medicine. Vol. XI. No. 8. June, 1909. London: Longmans, Green, and Co.—This number of the Proceedings of the Royal Society of Medicine is largely occupied by reports of cases presented to the several sections, many of which we have published. The chief contribution to the Section for the Study of Disease in Children is Dr. F. Parkes Weber's careful account of a case of Congenital Obliteration of the Bile-ducts with Hepatic Cirrhosis, in which a streptococcal infection was the final cause of death. The Dermatological Section is devoted to a full report of Dr. Louis Wickham's demonstration of his methods and results in the Therapeutic Applications of Radium. In the Epidemiological Section Dr. John Brownlee presents certain considerations on the Causation and Course of Epidemics, in which he examines the curves of incidence in several epidemics in relation to known mathematical laws, an interesting and complex piece of work which is capable of extension. Mr. M. Greenwood follows with a statistical examination of the Problem of Marital Infection in Tuberculosis, which leads to the conclusion that our statistical data are at present far from sufficient to settle the question. The keen discussion on these papers, which is well reported, echoes the debate on Heredity in Relation to Disease which occupied so much of the attention of the Royal Society of Medicine earlier in its late session. The Laryngological Section is entirely devoted to clinical records and the Medical Section to papers on the Serum Treatment of Typhoid Fever, by Dr. R. Tanner Hewlett, Dr. E. W. Goodall, and Mr. R. M. Bruce. These authors contribute a note on an Ophthalmo-Reaction obtained with a Solid Typhoid Endotoxin, which does not seem to be diagnostic of enteric fever. The Obstetrical Section reports a discussion upon the Management of Rupture of the Uterus, following upon papers by Dr. T. W. Eden and Dr. A. Lionel Smith concerning that grave accident. In the Odontological Section Mr. W. Warwick James writes on the Eruption of the Teeth. The Otological Section records only notes of cases. In the Surgical Section Mr. J. Hutchinson's paper on Auto-inoculation and Re-infection in Syphilis, which has appeared in our columns, precedes an account of Jejunal and Gastrojejunal Ulcer following Gastrojejunostomy, by Mr. H. J. Paterson, who has collected a very careful bibliography of the condition in question. The Therapeutical and Pharmacological Section contains the instructive paper on the Results of a Year's Use of Vaccines in General Medicine, which Dr. W. Hale White and Dr. J. W. Eyre recently published in THE LANCET; and also Dr. William Bain's paper on the Interaction of Digestive Ferments. We note that the next number of these Proceedings will be issued in October, and will include the title-pages and index for the second volume.

New Inventions.

A NEW RETRACTOR AND ARTERY FORCEPS.

I SHOULD like to bring two instruments which I have devised to the notice of other surgeons. The first is a retractor for the splitting operation for appendicitis. As I consider the splitting operation in appendicitis the only justifiable one, I have thought that the modification in the form of the retractor shown in Fig. 1 obviates one or two objections common to those in ordinary use, because (1) the part introduced in the wound is always in the same plane as the muscle retracted, consequently it is not lacerated; (2) the width of the retractor is just enough to give a good field of operation without unduly stretching the external oblique; and (3) the handle is placed at an angle to accommodate the

FIG. 1.



assistant's fingers below, whilst the thumb lies on the upper surface.

The other instrument (Fig. 2) is an artery forceps of a new pattern. The difficulty of tying beyond the points of the artery forceps in deep situations led me to try a globular end to the Spencer Wells, and I can now, after a fair trial, attest to the great advantages thereby attained, because (1) they do not take up more tissue than other forceps; (2) the surgeon can tie off the artery by himself and take

FIG. 2.

off the forceps afterwards; (3) once the ligature is beyond the greatest circumference of the globular end it must tie off properly if it is tied tight enough, and the certainty of this saves much time in operating; (4) they will pick up the smallest and most fragile artery; and (5) the circular grooves on the inner surface give a very firm hold.

Messrs. Down Bros. have taken great pains in carrying out my ideas in both these instruments which they have made excellently.

A. Z. C. CRESSY, M.R.C.S. Eng.

Wallington.

THE SEXA-BIDET.

THE Sexa-Bidet is a very convenient appliance either for simply washing the parts in question or for the application of medicated lotions. When in use it is held in the hand in a horizontal position as shown in the illustration, the curved edges being pressed firmly against the body; it may also be partly filled with water when standing upright on a table, like an ordinary jug. It is quite portable, measuring 13 inches in its greatest length and about 5 inches in width. The material is highly glazed white earthenware. In cases of venereal disease the advantages of such an appliance for individual use are obvious. The Sexa-Bidet may be obtained from Mr. Paul Metz, 29, Newhall-hill, Birmingham. There is a slight difference in the curvature of the open end in the patterns used by males and females respectively; the prices are 4*s.* 6*d.* for the former and 5*s.* for the latter.

THE BRITISH MEDICAL ASSOCIATION.

SEVENTY-SEVENTH ANNUAL MEETING AT BELFAST.

THE SECTIONS.

MEDICINE.

FRIDAY, JULY 30TH.

President: Professor JAMES ALEXANDER LINDSAY (Belfast).

Dr. H. S. SOUTTAR (Brentwood) described the experiments which he and Dr. Theodore Thompson had made in order to secure

A Practical Form of Gastroscope.

At first they considered it axiomatic that a gastroscope must consist of a series of jointed segments so constructed that during passage it should be flexible, but that when in position the segments could be locked together into a rigid tube. This proved to be wrong, although one form was constructed on this principle. Experiments on the cadaver proved futile except for purposes of measurement. In order to determine the normal form of the œsophagus and to what extent it could be straightened they passed metal-lined bougies and examined their shadow on a fluorescent screen by means of the X rays, the patient bending his back and moving his head in various directions. By experiments upon themselves they found that the œsophagus would tolerate a straight rod 15 millimetres in diameter leading from the fauces to the cardiac orifice of the stomach. Beyond the cardia such a straight rod could not be carried, since it would impinge on the lower dorsal vertebræ. The lower end of their instrument was therefore bent forwards at an angle of 30°. At the upper end of the tube an oral portion was added at an angle of 60° with the œsophageal limb. In this way there was evolved an instrument with only two angles, which conformed exactly to the anatomical requirements and proved easy to pass, for the forward tilt of the beak, instead of being a danger, proved to facilitate its passage. When it was being passed the patient's head and neck were brought well forward, accentuating the dorsal concavity, into which the angular instrument fitted snugly; during the descent of the instrument the head and neck were allowed to fall back. Dr. Souttar and Dr. Thompson had never found any difficulty in passing the instrument and had observed no ill effects from its use. The preparation of the instrument proved to be very expensive, since six complete instruments were made by Dr. Souttar himself before a practicable form was reached, and the authors acknowledged their indebtedness to the London Hospital Medical research fund for assistance. The instrument consisted of three layers—an outer protective layer of steel, a middle supporting layer of metal covered with silk, and an inner tube which was capable of rotation, this rotation being transmitted to the nose-piece of the instrument. An arrangement of mirrors and a lens of very short focal length enabled a small image to be formed near the eye end of the tube, and this image was enamined by an eye-piece. Owing to the possibilities of moving the tube and of rotating the nose-piece practically the whole of the inner surface of the stomach could be examined, but it was necessary to inflate the stomach with air for this purpose. In using the gastroscope the stomach should, if possible, be empty, and it was shortly beforehand washed out by means of a tube. It was preferable that the patient should be under an anæsthetic. The mouth was opened by means of a Mason's gag and the head lifted forwards. A full-sized bougie was first passed as a precaution, and after its withdrawal the nose of the gastroscope was guided into the pharynx by the finger. At the cricoid cartilage some resistance was always met from tilting of the cartilage and from spasm of the upper end of the œsophagus. Gentle manipulation soon enabled the instrument to pass, and it glided down the œsophagus by its own weight. Slight spasm was again met with at the cardiac orifice. As the instrument glided down the head was gradually allowed to fall back again. The pump was attached and the stomach inflated, whilst an assistant percussed out its lower border. The light was switched on and the nose rotated and deflected until the whole mucous membrane had been systematically examined. Dr. Souttar claimed that no more manipulative skill was required than in the use of a cystoscope.

Dr. THEODORE THOMPSON (London) gave an account of the results achieved by this instrument. He pointed out the great importance of early diagnosis in the graver disorders of the stomach, notably in carcinoma and ulcer. It was desirable that carcinoma of the stomach should be diagnosed before the tumour became palpable, by which time the lymphatic glands had almost invariably become infected. It was probable that the earliest indications of gastric cancer at present known were really those of the gastritis excited by the presence of the new growth within the stomach, and it was therefore of importance to examine directly the interior of the stomach in all cases of persistent gastritis in adults. In an apparently healthy stomach the first appearance observed was of a bright red reflex. On carefully focussing with the eyepiece the folds of mucous membrane could be seen running transversely across the field, and there were numerous bright specks of light due to the reflexion of light from particles of mucus on the surface. At the pyloric end the folds of membrane were distinct and appeared to converge towards the funnel-shaped pylorus. Coloured sketches were shown of the normal appearance in different regions of a case of acute gastritis, of a case of anæmic mucous membrane of a stomach with petechiæ, of another with gastric ulcer, and of another with pyloric carcinoma.

Dr. LEWIS A. SMITH (London) and Dr. D. W. SAMWAYS (Mentone) both spoke briefly and Dr. SOUTTAR replied. A demonstration of the instrument was given.

Dr. A. GORDON GULLAN (Liverpool) read a paper on a

Unique Case of Hour-glass Contraction of the Stomach,

making special reference to diagnosis. The patient was a woman, aged 36 years, who had been subject to attacks of vomiting since her school days, these attacks being independent of pain and also of the ingestion of food. Later in life gastralgia had occurred and two years before severe hæmatemesis and more frequent vomiting with signs of dilatation of the stomach appeared. These symptoms at first disappeared under treatment by lavage in the Liverpool Stanley Hospital, but soon recurred after her return home, and then marked peristalsis of the stomach manifested itself. As all forms of medical treatment were unavailing a gastro-jejunostomy was performed, but the patient died. The stomach was found to be enormously dilated, extending from the epigastrium to the pubes; it was somewhat twisted on itself and distinctly divided into two large portions, both larger than an ordinary dilated stomach. The proximal portion was the larger one and overlapped the distal, to which it was fixed by adhesions, and thereby preventing the fissure between the two portions from being recognised during life, and the two parts from separating from each other. The pylorus was tough and fibrous and only transmitted a small quill, and this fibrous tissue was continued along the lesser curvature for about four inches to the spot at which the hour-glass constriction occurred; this was so narrow that the little finger alone could pass through the opening. Dr. Gullan discussed the various tests useful in the diagnosis of hour-glass contraction of the stomach, and showed that many of them were absent in this case owing to the adhesions, the twisting, and the overlapping of one part of the stomach over the other. For these reasons the bi-lobed appearance could never be detected during life.

Dr. PURVES STEWART (London) read a paper on the

Technique and Results of Schlösser's Method of Treatment of Tic Douloureux.

He described tic douloureux as the most severe of all forms of physical pain, and stated that owing to its inveterate character and its tendency to increase in frequency and severity the patients were ultimately driven to chronic morphinism or to suicide. It had been a therapeutic despair for many years, since operations on the peripheral branches of the nerve only gave temporary relief and produced deformity, while the operation for excision of the Gasserian ganglion was one of considerable mortality and led to grave deformity from muscular wasting, with anæsthesia of the skin, nose, eye, and mouth, and occasionally a destructive ophthalmia in the anæsthetic eye. He then referred to the results obtained by Professor Schlösser from the injection of alcohol into the foramina of exit of the branches of the nerve from the skull. These injections might produce temporary cutaneous anæsthesia, but they led

to a cessation of the pain, often for prolonged periods. Among 120 cases there was an average period of relief lasting from 10 to 11 months, and this without scarring, deformity, or permanent anæsthesia. The apparatus necessary was a stout hollow needle 10 centimetres long and 1½ millimetres in diameter, provided with a blunt stilette projecting beyond its point. The needle was marked in centimetres up to 5. The method was to push in the needle through the skin and then to project the blunt stilette through so as to avoid injury to vessels in carrying the needle to the foramen selected. The stilette was withdrawn and 2 cubic centimetres of alcohol of 75 per cent. strength, containing 2 grains of eucaine to the ounce, were injected. On withdrawal the puncture made by the needle was covered with collodion. No general anæsthetic was necessary, except in the case of the first division, the patient only feeling a transient flash of pain when the nerve was reached. The directions for reaching the foramina were as follows: (1) for the foramen rotundum, to enter at the lower border of the zygoma near its anterior end and to push inwards into the pterygo-maxillary fossa, the foramen being at a depth of 5 centimetres from the surface; and (2) for the foramen ovale to enter at the lower border of the zygoma 2·5 centimetres in front of its descending root, the foramen being at a distance of 4 centimetres from the surface. For the first division the needle should be introduced along the outer wall of the orbit for a distance of 3·5 centimetres. Sometimes one injection was enough to relieve the pain, but it was better to repeat it after two days and again after three or four days. The only complications observed were temporary stiffness of the lower jaw in the case of the second and third divisions, with some œdema of the lower lid and slight weakness of the facial muscles. With the first division there was marked œdema and sometimes transient paralysis of the external ocular muscles. Dr. Stewart quoted 15 cases which he had treated by this method, and in 12 of these, or 80 per cent., there had been recovery lasting from ten months downwards. He also described the three cases of comparative failure, and in conclusion said that although not a panacea the injections were a useful form of treatment.

Dr. W. B. MCQUITTY (Belfast) showed a case of this disease, and Dr. STEWART gave injections into the foramen ovale and foramen rotundum.

The paper was discussed by Dr. W. P. KENNEDY (Bath), Mr. H. A. BALLANCE (Norwich), Dr. TOM A. WILLIAMS (Washington), and Dr. O'SULLIVAN.

Dr. TOM A. WILLIAMS (Washington, D.C.) read a paper on

Tabes Dorsalis, its Rational Treatment in the Light of its Real Pathogenesis.

He deprecated the pessimism as regards treatment in this disease engendered by the dystrophic theory of its pathogenesis, and showed microscopical sections and lantern slides in support of the radicular theory which was first brought forward convincingly by Nageotte. Dr. Williams believed that there was a round-celled infiltration of radicular meninges and that this process differed only in intensity, but not in nature, from that upon the meninges elsewhere in syphilis, and showed that in some spots there might even be found a well-marked granuloma of minute size. This inflammatory process invaded the peri- epi- and endo-neural sheaths and impinged upon and injured the nerve fibrils. Their degeneration at this spot led to the degeneration of the posterior columns of the cord. The objection that these radicular changes were more often absent than present was only true as regards the macroscopic appearances. Careful search with the microscope always revealed meningeal exudates. The escape of the anterior roots was merely relative, and the rapid regeneration which occurred in them and which was possible because of their connexion with their trophic cells entirely negatived a dystrophic explanation. In the light of these observations Dr. Williams strongly recommended intramuscular or intravenous injections of mercury, and claimed that the local radiculitis which he regarded as the basis of the disease could be arrested in a large proportion of the cases. Intramuscular injections sufficed for most cases, except those threatened with rapid loss of vision. The forms of mercury he employed were the cyanide or perchloride. For intravenous injection a very small and very fine needle of platinum-iridium was used, and after insertion it was recommended to draw out a drop of blood into the syringe in order to make certain that the vein had been entered.

Dr. THEODORE THOMPSON (London) said that in his opinion the radicular theory was not proved. He believed that in tabes dorsalis the symptoms were those of a lesion of the secondary sensory neurons, and that the lesion was situated at the junction of the primary and secondary neurons—namely, in the pericellular network in the posterior cornua—where the earliest changes were found. Tabes dorsalis was therefore a dystrophy beginning in the axonal terminations within the spinal cord, while the changes in the posterior roots were secondary.

Dr. GORDON GULLAN (Liverpool) endorsed Dr. Williams's view that early cases should be treated with antisyphilitic remedies and mentioned cases treated with benefit on these lines.

Dr. WILLIAMS briefly replied.

Dr. H. D. ROLLESTON (London) read a paper on

Pruritus in Lymphadenoma.

He stated that itching of the skin in lymphadenoma was not often recorded. In an analysis of over 90 cases it was only mentioned in three. In 20 cases at St. George's Hospital, London, he had found it in three. The causation of this symptom was unknown. It was not due to drugs. It had occurred before arsenic was given, and in one case it occurred after potassium iodide had been administered. There was no evidence that it was due to any special infiltration of internal organs. In a case under the care of Dr. W. Howship Dickinson the liver was found to be lardaceous, but it had occurred in cases without involvement of the liver. It was natural to suppose that it was toxic, and the occurrence of lardaceous changes in the liver in two cases supported this view, as did also its association with general exfoliative dermatitis. By analogy with the itching in jaundice it might be expected to be absent in children, and the earliest recorded case was at the age of 16 or 17 years. It might be one of the earliest symptoms, appearing even before enlargement of the glands. It might lead to infection of the skin, producing lesions simulating Hebra's prurigo. Dr. Rolleston had the impression that cases with early itching ran a rapid course. In regard to treatment, ordinary methods such as calcium chloride, carbolic acid, and antipyrin should be tried, but the itching was often so severe that morphia was necessary.

SURGERY.

FRIDAY, JULY 30TH.

President, Professor T. SINCLAIR (Belfast).

Mr. G. A. SYME (Melbourne) read a paper on

Some Unusual Cases of Echinococcus (Hydatid) Cyst, with Remarks on Diagnosis and Treatment.

He commenced by saying that he much preferred to call these cysts "echinococcus cysts," as was customary in Australia. The diagnosis of an unruptured echinococcus cyst in the liver or lung was fairly easy, especially since the introduction of X rays, for the cyst had a typical appearance in a skiagram. When the cyst was ruptured in the liver the diagnosis was not so simple, for the passage of the daughter cysts down the biliary passages might give rise to symptoms resembling biliary colic. When a cyst of the liver caused gradual absorption of the diaphragm and then burst into the lung it was liable to be mistaken for a primary cyst of the lung; but here also X rays might enable the diagnosis to be made. External violence might cause rupture and give rise to abdominal symptoms. The manner of reproduction of a hydatid cyst varied with the tension; in bone where there was little possibility of expansion the cyst reproduced itself exogenously, but when the cyst was able to grow freely and to become spherical, very few daughter cysts were formed. Mr. Syme decribed the case of a female patient, 24 years old, who had pain in the left buttock shooting down to the left ankle. The condition had lasted six months, with a swelling that was said to vary in size. She had lost flesh. On examination there was found a tense and elastic swelling in the left iliac region, and in Scarpa's triangle on the same side. The blood contained 9 per cent. of eosinophils. A skiagram showed much "rarefaction" of the ilium and sacrum. At the operation a cyst was found connected by a pedicle with a cavity in the sacrum. The patient had improved since. In another case a patient complained of pain on the right side of the chest, and on the right side of the spine there was a swelling. It was found at the operation that a cyst was

involving a costovertebral joint and extended into the cavity of the chest, and cysts had also formed within the bodies of some vertebræ. Recovery followed. The value of the precipitin reaction in diagnosis was by no means certain, but eosinophilia was a useful help. In the treatment of echinococcus cysts it was possible sometimes to close the wound completely without drainage.

Mr. J. WARD COUSINS (Portsmouth) referred to two cases which he had seen of unsuspected subdiaphragmatic cysts accompanied with high fever. He also mentioned a case of enormous hydatid cyst of the abdomen which had been mistaken for ascites.

Mr. SYME, in reply, referred to a very large cyst arising from the liver in which huge masses of bilirubin were found.

Mr. P. J. FREYER (London) read a paper on

A Recent Series of 200 Cases of Enucleation of the Enlarged Prostate, with Special Reference to the Operation (1) in Octogenarians and (2) in Cases of Extremely Large Prostate.

He said that it was now eight years since the introduction of his method of enucleating prostates and he had described several series of cases; he had performed 212 prostatectomies since he read his last paper on the subject. Among these there were 17 cases in which the patient was over 80 years of age, one of them having a fatal result. Of the 644 cases on which he had operated there were 48 octogenarians, or if nine cases of the age of 79 years were included, there were 57 cases of patients 79 years of age and over, and of these six died. In his opinion there was just as much chance of success in the operation in an octogenarian as in a younger patient provided the kidneys were sound. Careful nursing was of the greatest importance. The size of the prostates which he had removed varied greatly, but the size of the incision need not be very large even for a very large prostate, for the prostate was elastic and could pass through an opening smaller than itself. The weight had varied from half an ounce to nearly 17 ounces, with an average of 2½ ounces; there were in all 644 cases, and the ages varied from 48 years to 89 years; there were 39 deaths, equal to a mortality of 6 per cent., but in the last 200 cases the mortality had fallen to 4·24 per cent. In 114 of the cases a calculus was removed at the same time.

Mr. A. B. MITCHELL (Belfast) congratulated Mr. Freyer on his success, and he expressed the opinion that the present operation was entirely due to Mr. Freyer.

Mr. WARD COUSINS asked if in severe septic cases the bladder was drained before the operation.

The PRESIDENT asked if the removal of a large prostate left an hour-glass-shaped cavity.

Mr. FREYER, in reply, said that the cavity previously occupied by the prostate became a part of the bladder cavity and disappeared as a separate space, though in some of the earlier cases a separate space did persist, and this was due to not passing the catheter sufficiently frequently when washing out the bladder. In cases where the tongue was dry and the kidneys were affected he preferred to open and to drain the bladder for a week or ten days before enucleating the prostate.

Mr. E. C. HORT (London) read a paper on

The Diagnosis of Malignant Disease by Estimation of the Antitryptic Content of the Blood Serum.

He said that the need for improved methods of diagnosing cancer was shown by the fact that of 3532 cases proved after operation or after death to be cancerous the disease had not been recognised in 582 cases—i.e., 1 case in 6 was missed. In 303 cases occurring in the first 25 years of life the disease was not recognised in 128—that is, the disease was missed in 1 case in 2·3. In addition 334 cases diagnosed as cancerous proved to be not malignant. The paper was written to show that it was possible to diagnose cancer by measuring the antitryptic power of the blood serum. By the antitryptic power of the blood was meant the power that a serum had of antagonising in vitro the digestive activity of the ferment trypsin. The antitryptic power of the serum of healthy adults was found to be so constant that healthy serum could be used as a standard. The antitryptic power of the serum in certain non-cancerous conditions, such as after fractures and nephritis, was above the normal as a result of autoinfection; it was also raised in general bacterial diseases. It was raised in 94 of 100 consecutive cases of undoubted cancer; after successful removal of the cancer the antitryptic power of the serum was raised, but in cases in which recurrence had occurred it was as high as if no operation had taken place. It might be concluded that a normal antitryptic power was of great value in excluding malignant disease; a raised power was no proof of malignancy unless simple autoinfection and bacterial infection could be excluded.

Mr. A. B. MITCHELL (Belfast) read a paper on 16 cases of

Perforating Duodenal Ulcer

which he had had under his care. All the cases recovered. He referred to the great frequency of gastric and duodenal ulcers in Belfast, and pointed out that in diagnosing the presence of a perforation too much weight must not be laid on the absence of shock. A sudden intense pain and rigid abdominal muscles afforded the most certain signs. Extravasation was not great in amount as a rule, and this he attributed to a contraction of the pylorus, which prevented the contents of the stomach from passing out; and this explanation would account for the fact that the results in perforated duodenal ulcer were much better than those following perforation of a gastric ulcer. He preferred an incision through the right rectus muscle and he closed the opening in the duodenum by means of a purse-string suture. He did not flush out the peritoneum, but he inserted a glass drain tube over the pubes, and from this there always came a free flow of liquid. He preferred to perform immediate gastro-jejunostomy, and this he did in seven cases, all of which recovered. After the operation the patient was propped up in the sitting posture, and a continuous flow of saline fluid into the rectum was set up, about a pint being passed in every hour. For washing out the drain tubes he used a solution of perhydral, about 1 in 10 or 12, and this he found very effective.

Mr. WARD COUSINS said that in his opinion the amount of shock present in cases of perforation depended chiefly on the amount of extravasation.

Mr. W. THELWALL THOMAS (Liverpool) pointed out that Murphy's method of continuous rectal irrigation was often carried out inefficiently.

Mr. MITCHELL, in reply, mentioned an objection to opium even after the diagnosis of perforation was made—namely, that the apparent amelioration produced was likely to make the friends postpone operation.

Mr. G. H. EDINGTON (Glasgow) read a paper on

Some Cases of Intestinal Anastomosis.

He classified these operations into three groups—namely (1) cases in which small intestine was united to small intestine, (2) cases in which the ileum was united to the colon, and (3) cases in which portions of the large intestine were anastomosed. He described some cases which he had treated and gave details of the methods employed.

Mr. C. A. LEEDHAM-GREEN (Birmingham) read a paper on

Scopolamine-morphine Narcosis.

He said that he had some time ago been in favour of spinal analgesia, but it was not an ideal method from the patient's point of view, for a troublesome headache frequently followed. On the other hand, the method which he was now bringing forward was almost ideal from the patient's point of view. At first he gave a large dose of scopolamine and morphine and did not use a general anæsthetic, but it was much better to give a small dose and to follow it with a general anæsthetic. The procedure he preferred was as follows. The evening before the operation he gave ten grains of veronal and this ensured the patient having a good night's rest. Two hours before the operation he injected a sixth of a grain of morphine and a hundred and thirtieth part of a grain of scopolamine. An hour later half of this dose was injected. At the operation itself a general anæsthetic was given, ether being preferred. The advantages were great, because (1) the patient was spared much nervous tension; (2) full narcosis was quickly obtained; (3) the amount of the general anæsthetic was halved; (4) less mucus was formed; (5) a long and peaceful sleep followed the operation, lasting from four to six hours; (6) there was almost an absence of vomiting, for it occurred only in one case out of ten; and (7) the risk was much lessened.

Dr. CLEMENT DUKES (Rugby) said that he thought much of the method and employed it greatly. He found that it was necessary to use a very small amount of the general anæsthetic.

Mr. LEEDHAM-GREEN said that he did not in any way suggest that the method was final and no doubt it would be improved.

A paper by Mr. ALEXANDER BLANEY (Dublin) on

Four Cases of Removal of the Gasserian Ganglion

was read by Mr. H. STEVENSON (Belfast). In the paper the methods of removal of the ganglion and the value of the operation were discussed.

On the motion of Mr. WARD COUSINS, a cordial vote of thanks for presiding was accorded to Professor Sinclair.

HYGIENE AND PUBLIC HEALTH.

THURSDAY, JULY 29TH.

President, Dr. LOUIS C. PARKES (London).

This section met in joint conference with the Laryngology, Otology, and Rhinology Section.

A very full and well-sustained discussion took place upon

Latent Infections of the Diphtheria Bacillus, and Administrative Measures Required for Dealing with Contacts.

Dr. P. WATSON WILLIAMS (Bristol) dealt with the question from a clinical point of view and Dr. R. M. BUCHANAN (Glasgow) from a bacteriological standpoint, while Dr. DUNCAN FORBES (Brighton) and Dr. R. V. CLARK (Leeds) dealt with administrative measures.

Dr. WATSON WILLIAMS, in opening the discussion, said that he considered that if diphtheria was defined as any pathological condition, either local or general, and due to infection by specific diphtheria organisms, it was latent when such pathological conditions were unaccompanied by obvious illness. He further considered that the impinging of diphtheria bacilli on the nasal or oral mucous membrane without any local reaction was not a true diphtheria, but was clinically a form of latent diphtheria. These latent forms could be clinically divided into the following three main groups. 1. Patients who afforded none of the usual clinical indications of diphtheria, were not definitely ill, and yet were found to be anæmic, or to have increased pulse frequency, or who were simply poorly in association with nasal catarrh, membranous rhinitis, faucial redness or slight subacute tonsillitis, otorrhœa, or sores, &c., which on bacteriological examination proved to be diphtheritic. He gave the clinical history of two such cases, one being a patient who presented no clinical symptoms, but whose culture preparation showed diphtheria bacilli and who died shortly afterwards. The second case was one of an adult with accessory sinus suppuration and congested follicular tonsillar crypts, whose culture preparation also showed diphtheria bacilli. A child who came into contact with her showed nothing definite clinically, but a culture taken from it demonstrated diphtheria bacilli and virulence upon inoculation. 2. Cases with local diphtheritic lesions, but presenting no general symptoms of ill health. He considered that this class comprised cases that were indisputably latent. He referred in this connexion to a woman suffering from sore-throat of indefinite nature who three weeks afterwards gave a children's party; some of those who were present developed membranous rhinitis, cultures from whom showed the diphtheria bacillus. After three months they were declared free from infection, and yet they afterwards gave diphtheria to a relative. 3. Persons who presented no local lesions and no departure from normal health, but in whom diphtheritic organisms had been discovered by culture tests. These cases he termed healthy infected contacts. In this connexion the cases cited by Graham Smith, which might appear to upset the speaker's theory, he did not consider conclusive, because no mention had been made of any cultures taken from the nose, which he believed absolutely necessary. He was aware that house surgeons and nurses in contact with diphtheria patients might harbour virulent organisms without manifesting any local signs of disease, but practically they did not convey infection, as organisms inhaled and merely coming into contact with a healthy nasal mucosa were quickly removed, whereas if they were retained and multiplied such cases come under Class 2. He suggested that the practical criterion, however, was the virulence test by inoculation, and that the morphological characteristics of the bacilli were not reliable, and he instanced cases in proof of this assertion. With reference to treatment, he did not think that local applications were of much use in causing the disappearance of the bacilli, though during their use they diminished the infectivity of the patient. It was practically impossible to get any antiseptic in contact with those organisms in the superficial layers of the mucosa and at the bottom of the various crypts in the neighbourhood. He considered that antitoxic serums had some anti-microbial effect, but that in a large proportion of cases they failed because the proportion of bactericidal substances varied, and because it was necessary to use larger quantities of the serum than was necessary merely for their antitoxic effects. Vaccines might be applied locally and cause a diminution in the number of the bacilli; also cataphoresis as employed by Dr. Taylor was worthy of consideration.

Dr. BUCHANAN said that the identification of the diphtheria bacillus in routine diagnostic work depended on the morphological characters of the organism. The exigencies of the work demanded expedition, which in a small proportion of instances was secured at the expense of accuracy. At the same time, morphology in itself was not sufficient to place the recognition of the bacillus beyond doubt, and for this purpose it was necessary to resort to cultural and inoculation tests involving from four to six days as a minimum period of time. With a view of giving support to bacteriological diagnosis based on morphology various tests had been devised, and the use of media containing different sugars, with an indicator to show the presence or absence of acid production, had given the best results. He himself had obtained excellent and rapid results by coagulating ox serum in an equal quantity of water, filtering the mixture, adding 1 per cent. of glucose to one half and 1 per cent. of saccharose to the other half and "tubing," neutral red being used as an indicator. In 24 hours a marked acid reaction was produced in the glucose tube by bacillus diphtheriæ, and in both tubes by bacillus xerosis, while no change was produced in either tubes by the bacillus of Hofmann. The virulence of the diphtheria bacillus in apparently healthy subjects, whether designated contacts or carriers, was only slightly less than the virulence of the organisms in patients. He had applied the virulence test in the case of 21 contacts with positive results in 66 per cent. of the instances. The test as applied to the bacillus isolated from 56 patients showed virulence in 74 per cent. of them. The bacillus diphtheriæ was most tenacious of its virulence, and attempts which had been made to reduce the virulence of the organism by the usual means of heating, drying, and prolonged cultivation had not shown any conspicuous success. On the other hand, it was possible to increase the virulence of a particular strain experimentally. When the bacillus gained a lodgement in the throat it appeared to remain for a varying length of time, whether it produced disease or not. The period of residence of the organism in the sick and in the healthy was probably determined by the same factor and was not apparently influenced by antitoxin. A comparison of clinical cases and infected contacts showed no very marked difference in the average period during which the bacillus was harboured in the throat.

Dr. DUNCAN FORBES, in discussing the question from an administrative point, said that before penal action could be taken a person must be *suffering from* the particular disease, and he suggested that in future legislation the word "suffering" should be replaced by the phrase "in an infective condition." As regards the taking of swabs for bacteriological examination, he considered that too little attention had been paid to the probability of nasal diphtheria being much more infectious than throat diphtheria. In collecting exudation on swabs a careful study should be made of the parts from which it was taken, especially when it was taken from the nose, and where there was much secretion coming from the nose this should be wiped away before applying the swab to the mucous membrane. The administrative measures for dealing with contacts depended on the situation of the primary cases. In schools the first action should be to make inquiries at the school as to absentees from the same class who returned to school shortly before the onset of the disease in the patient. Swabs should be taken from all pupils, present or absent, in whom there was a history of sore-throat or cold. In Brighton infective contacts were sent to the diphtheria wards of the isolation hospital. Except in the case of adults antitoxin was usually injected on admission, and the contact was treated as a diphtheria patient, three negative swabs being obtained from nose and throat before discharge. If objection was made to removal to hospital the child was

left at home and the parents were advised to keep the child apart from other children, and four weeks' school exclusion was enforced. In Bristol contact carriers were isolated, either in the hospitals for infectious diseases or by their medical attendant, and children who had been in direct association with cases of clinical diphtheria, and who were carriers of Hofmann bacilli, attended an out-patient department at the fever hospital. The difference in administrative procedure between Brighton and Bristol was that in the former town Hofmann's bacilli were disregarded. Dealing with the question of the prophylactic injection of antitoxin, Dr. Forbes said that the main object in avoiding such injections was in order that carrier cases might not be created. It had been proved that antitoxin had no influence on the length of infectivity, though it was probable that attacks of diphtheria in contacts were rendered milder by the injection and were therefore all the more readily overlooked. It thus followed that extensive injection of antitoxin would lead to the non-isolation of certain highly infective individuals.

Dr. CLARK gave some account of the procedure adopted in Leeds in connexion with outbreaks of diphtheria. He was of opinion that the incidence of cases of latent diphtheria was greatest where contact had been closest. He considered that a bacteriological examination should be made of material taken from the throat of every member of a family in which a case of diphtheria occurred, and that those should be isolated where a positive result had been obtained. The amount of work thus involved would be initially large but would tend to decrease.

Dr. J. A. KNOWLES RENSHAW (Manchester) supported Dr. Watson Williams in his advocacy of the virulence test.

Dr. D. MCKENZIE (London) expressed the view that the two lessons to be learned from the discussion were that nasal swabs as well as throat swabs should be taken, and that where Klebs-Löffler bacilli were found in carrier contacts the virulence test should be applied before isolation was resorted to.

Dr. E. W. GOODALL (London) pointed out that in the epidemic of diphtheria in London in 1893–94 bacteriological examination was not resorted to, and in spite of its absence the disease began to diminish. In order to put himself right with the metropolitan medical officers of health he made it a rule not to discharge patients until a certain number of negative results had been obtained after bacteriological examination, but he did not get any better results than his colleagues who did not follow the same practice. He considered that return cases of diphtheria were a negligible quantity, and he thought that those which were supposed to occur might very well be within the limits of accidental infection. It would be a very good thing if it could be decided once for all whether the swabbing of convalescents was desirable or necessary. The practice of giving prophylactic injections of antitoxin serum was not without danger, and he did not recommend it as a matter of routine. It might appear to be quite safe, but sooner or later a case would arise having serious results.

Mr. HERBERT JONES (Hereford) said that he agreed with Dr. Davies and Mr. Heaven of Bristol that Hofmann's bacillus might be ignored in the absence of cases of diphtheria, but he considered that during epidemics they must be reckoned with. He emphasised the importance of personal infection and suggested that when a case of diphtheria occurred in a class or group of children instead of prohibiting school attendance altogether the particular class should be taught in the open air.

Dr. STCLAIR THOMSON (London) asked what should be done with carrier cases, more especially with regard to their treatment. He would like some definite information as to whether treatment with serum shortened the sojourn of the bacilli in the nose or pharynx, and whether it lessened the risk of spreading infection.

Dr. J. M. CLEMENTS (Batley) referred to the value of the morphological test in determining whether a bacillus was the true diphtheria bacillus or not. For ordinary routine work he found that a microscopical examination after 24 hours' incubation on blood serum was sufficiently accurate. Wesbrook's classification was a useful working one and all bacilli conforming to the C and D types could be safely regarded as positive. The Hofmann type could be disregarded, though occasionally he had met with a virulent case of diphtheria which after repeated swabbings had revealed only that type. The differential culture test which he regarded as of most value was the production of acid, and he had never found the Hofmann type capable of producing acid in sugar media. He was of opinion that the prophylactic injection of antitoxin was of some value, but he admitted that owing to the low degree of infectivity of the disease it was difficult to come to any definite conclusion on the matter.

After some remarks by Dr. R. H. SCANES SPICER (London) and Dr. H. J. EGERTON H. WILLIAMS (Sheffield),

Dr. ANDREW WYLIE (London) asked Dr. Watson Williams if he would operate on a mastoid or sinus case if the diphtheria bacillus were found in the discharges.

The PRESIDENT said that the question under discussion was not one upon which they could dogmatise. He emphasised the importance of taking nasal swabs in suspected diphtheria and said that he had been particularly struck with the large number of outbreaks of the disease in the Victoria Hospital for Children which had been caused by nasal infection. He urged the importance of clearing out the nasal passages with hot water or in other ways before taking material for examination. He agreed with Dr. Goodall that mere contacts should not be sent to hospitals where there were acute cases of the disease. Referring to special homes for carrier contacts he was of opinion that they were quite unnecessary. During inter-epidemic periods he considered the proceeding of little value, but his experience in London had led him to the conclusion that the striking power of diphtheria was much greater in epidemic periods than at other times.

Dr. ROBERT MOWBRAY (Castlederg) pointed out that the less interference there was with an epidemic the sooner susceptible material became exhausted. The careful guarding of susceptible persons resulted in the disease being always with us but in a sporadic rather than in an epidemic form.

Dr. WATSON WILLIAMS, replying on the discussion, said that until a few years ago diphtheria was treated in the ordinary wards of the Royal Infirmary in Bristol, except in the case of children, and no cases of infection occurred. He considered that carrier contacts in public schools must be isolated, but he admitted that when the organism had been found it was difficult to know what to do with the host. The Hofmann type of bacilli he always neglected. He suggested the advantage of giving antitoxin by the mouth and when administered for prophylactic purposes it might be administered with advantage in peppermint water.

Dr. FORBES said that if an outbreak of diphtheria occurred in the scarlet fever ward of a fever hospital under the direct control of the medical officer of health, he considered tha new cases might be admitted to the ward, but that in a children's hospital which would not be under the charge of the medical officer of health he would prefer to close the ward before admitting fresh cases.

Dr. BUCHANAN said that he did not attach any importance to the Hofmann type of bacilli. Routine diagnosis depended entirely upon the morphological test, but where it was necessary to have absolute diagnosis the virulence test was essential. The form of the bacillus depended very largely upon the medium used, and where the morphological test was in doubt a tentative opinion should be given unti the virulence test had been applied.

Dr. EDWARD MAGENNIS (Dublin) read a paper dealing with the

Duties of the School Medical Officer.

He deplored the indifference of the public to matters relating to health and expressed the opinion that more attention was paid to the health of cattle than of human beings.

Dr. HENRY O'NEILL (Belfast) urged the importance of the medical inspection of school children.

At the close of the meeting the members of the section were given an opportunity of inspecting the sewage outfall works of Belfast, situated on land reclaimed from the Lough. Included in the plant were percolating filter beds with revolving sprinklers and Dibdin slate beds, the adoption of the latter having been decided upon in order to avoid the great cost of dealing with enormous quantities of sludge. The difficulties attending the disposal of the sewage of Belfast are associated mainly with the enormous growth of ulva latissima which has accompanied the discharge of the sewage into Belfast Lough. The patient labours of Professor Letts appear to be in a fair way of solving these difficulties, and the visitors saw for themselves the operation of the experiments which had been made.

FRIDAY, JULY 30TH.

Dr. HENRY O'NEILL, a member of the Belfast corporation, in giving a short account of the

Belfast Sewerage System,

said that the problem of the collection, removal, and purification of sewage in Belfast was one of more than ordinary difficulty owing to the large number of linen factories, mills, gas and chemical works, foundries, rope works, and distilleries in the city, and also to the situation of the city on Belfast Lough, the sluggish tides and large areas of shallow water of which seemed to favour the growth of the green seaweed, ulva latissima. The weed when cast up in masses on the beach and allowed to decay and ferment always gave rise to a nuisance. Professor Letts had demonstrated by experiment that if the growth of the weed was to be stopped or even considerably reduced, it would be necessary to produce an effluent free not only from free ammonia but also from those nitrogen compounds such as nitrates, the presence of which in an effluent was usually regarded as evidence of *purification*. Experimental contact beds had been found (when dealing with sewage which had previously undergone screening and about six or eight hours' septic-tank treatment) to give an effluent containing comparatively small quantities of nitrogen in any form, but these beds rapidly silted up. Percolating filter beds with revolving sprinklers were proved to be highly satisfactory, both as regards economy of space and freedom from silting up. The effluent produced, though an exceedingly good one from the point of view of purification, contained a large quantity of nitrogen as nitrates, which it was recognised would provide an undesirable amount of food for the ulva. It had been finally found by Professor Letts that by mixing the effluent from a percolating filter with sedimented sewage in about equal quantities and again treating the mixture on contact beds, the organic matter in the sewage was oxidised at the expense of the nitrates in the filter effluent, the net result being a reduction in the total quantity of ulva-growing pabulum.

Professor E. A. LETTS (Belfast) said that during the past ten years he had been engaged in investigations with the object of arriving at the most suitable

Scheme of Purification for the Sewage of Belfast

and its effects on the waters of Belfast Lough. He first of all described the special conditions obtaining in Belfast and Belfast Lough. At one time the sewage of the town was discharged into the river through several outfalls, with the result that the river grew exceedingly foul, its bed became coated with black and highly offensive mud and its water turbid, while the stench at low tide and in warm weather was most offensive. The seaweed, consisting principally of ulva latissima and different species of enteromorpha, caused a considerable nuisance when washed ashore. A new main drainage scheme was begun in 1889 and included two main trunk sewers in the city discharging their contents only on the ebb tide. The condition of the river rapidly improved with the completion of this scheme, but the seaweed nuisance assumed such serious proportions as to demand public action. As a result of such action being taken a joint board was formed of the sanitary authorities concerned for the purpose of abating the nuisance by removal of the seaweed as it was cast ashore. The enormous cost of this procedure led to its abandonment and experiments were carried out by him with a view to preventing the growth of the seaweed. The details of these experiments were placed before the section in a very graphic and lucid manner by Professor Letts, who stated that the results were such as had been given by Dr. O'Neill in his paper.

Dr. R. J. EWART (Liverpool) assistant medical officer of health for Middlesbrough, presented a contribution dealing with some features concerning the

Sewage Pollution of the Tees Estuary.

After describing the formation of the estuary and giving a short account of the changes which had taken place during the past 25 years, not only in its configuration but also in the methods of disposal of the local sewage, water carriage having been adopted, he gave the results of bacteriological investigations which he had made in connexion with cockles and mussels collected from the banks of the estuary. The mussels were collected, 50 or 100 at a time, from all parts of a bed and indiscriminately taken as regards position, those under one and a half inches being discarded. They were taken immediately to the laboratory and scrubbed in sterile water, the hands of the investigator being covered with sterile rubber gloves. It was found that bacillus coli slowly became overgrown by the commoner organisms, and that the process was less rapid at the lower temperatures than at the higher. Bacillus typhosus showed much the same viability except that its periods were about halved, and under ordinary conditions it was usually overgrown in a week. The conclusions which Dr. Ewart came to as the result of his investigations were that it was possible to obtain mussels free from all evidence of sewage pollution; that there was a close relationship between size, number, and sewage pollution, for it appeared that where the mussels were of sufficient size to be marketable and were in sufficient quantities to be worth gathering, evidence of pollution was marked. He further found that the number of bacillus coli in the mussels corresponded closely to the environment, so that the mussel could not be regarded as a filter accumulating harmful organisms; the mussel did not seek these organisms, they were, so to speak, thrust upon it. Broadly speaking, a fall in the proportion of organisms growing at 20° C. compared with those at 37° C. corresponded with sewage pollution, and the same might be said of spore-bearing forms. He considered that mussels could not be looked upon as safe, especially when it was remembered that they were apt to die in transit to inland towns, in which case the bacterial contents would rise by millions. He concluded by discussing the forms of illness which might arise from eating mussels. He divided them into two classes. The first he called "toxic," as being due to the absorption into the system of organic poisons present in the substance of the mussel itself, and the second "bacterial," which he subdivided into general and specific infections.

Professor DUNBAR (Hamburg) said that the treatment of sewage effluents in tidal waters had at one time been considered an easy task, and only lately it had been realised that danger would arise from turning crude sewage into tidal waters. Greater importance had of late years been attached to the question from the fact that epidemics of typhoid fever had occurred through the consumption of shell-fish taken from waters into which sewage had been discharged. Sewage must be treated so as to kill all pathogenic organisms. This was formerly thought to be quite easy, but it was now known that it was impossible to disinfect crude sewage. In Hamburg after the great cholera outbreak of 1892–93 it was considered necessary that the sewage of the town should be sterilised, and with this end in view proposals were made to add lime to the crude sewage. The cost of adding lime in the proportion of 1 part to 1000 of sewage would be very great, and as it was impossible to kill bacillus typhosus even with 1 part in 500 the cost would be prohibitive. Crude sewage could not be disinfected. Bacteria coming from the intestine were found to be wrapped up in mucous matter, and the difficulties attending disinfection could be overcome by septicising, but for this purpose very large tanks were necessary, so that the question was whether it would not be cheaper to purify before disinfecting. In Hamburg all sewage coming from fever hospitals and emigrant stations as well as the waste water from the Hygienic Institute and disinfecting plants was disinfected. Where typhoid fever patients were nursed in their own homes official disinfectors were sent who explained the importance of, and the mode of, disinfecting the discharges.

Dr. W. J. WILSON (Belfast) gave an explanation of the working of an ingenious apparatus, which he showed to the meeting, for isolating bacillus typhosus from drinking water.

Sir PETER O'CONNELL (Belfast) said that the existence of differences of opinion on the question under discussion was evidence of the difficult nature of the problems to be solved. The most important fact to bear in mind was that the science of sewage purification was well able to deal at no prohibitive cost with the sewage of a town even as large as Belfast, and of turning out an effluent as pure chemically as many waters used for domestic purposes, but this very effluent on account of its purity was undesirable where local circumstances favoured the growth of seaweeds.

The PRESIDENT assured Professor Dunbar that the difficulties connected with the disinfection of crude sewage were fully realised in Ireland. He pointed out that they were not alone scientific difficulties, but those associated

with storm overflows, for it would be of little use to disinfect the sewage to the neglect of storm water. He spoke with approval of the steps which were being taken in Hamburg to destroy infective organisms. He asked Professor Letts whether he had made any experiments as to the efficacy of sulphate of copper in the destruction of ulva latissima.

Professor LETTS replied that he had experimented in that direction and had found that a very small proportion of sulphate of copper did kill the ulva. He had calculated that the cost of an experiment on a practical scale would be about £500, and he thought it was well worth considering whether two or three doses might not be effective if applied at the proper season. While agreeing with Professor Dunbar as to the difficulties of disinfecting sewage before it was discharged into a river, he pointed out that crude sewage was a source of danger in localities where bathing was indulged in.

Dr. T. CARNWATH (Manchester) said that in connexion with the question of oyster and mussel contamination two facts should be borne in mind—namely, the wide distribution of bacillus coli communis and other organisms indicative of sewage pollution and the mode of life of those bivalves. Viallanes had found that when mussels or oysters were placed in water which had been made turbid they rapidly rendered it clear by a peculiar process of filtration. It had been also found that the amount of water which could be filtered in this way per hour by the Portuguese oyster was 5·5 litres, by the mussel 3 litres, and by the French oyster 1 litre. A mussel would thus "absorb" or "ingest" in the space of one hour the organic matter, and incidentally sewage bacteria, if such were present, contained in three litres of water. It might be expected, therefore, that a considerable number of bacillus coli communis would be found in the mussel, but his observations had shown that although the mussel from its mode of life was exposed to considerable risk of infection, it did not when healthy furnish conditions favourable to the multiplication or survival of the organism. There was, indeed, sufficient evidence to show that the conditions were distinctly unfavourable. If infected mussels were placed in pure water they gradually rid themselves of bacillus coli, over 99 per cent. disappearing within the first few days. A quarantine period of even a week would be sufficient to reduce the number of organisms enormously, so that the risk was also lessened of the mussel serving as a means of transmission of occasional and much less resistant pathogenic organisms such as bacillus typhosus or the cholera vibrio.

The PRESIDENT said that they would no doubt be in general agreement as to the possibility of shell-fish being able to free themselves from sewage pollution. Safety to the public might be secured by placing shell-fish before its consumption in pure water.

Mr. P. C. COWAN, M.Inst.C.E., engineering inspector to the Local Government Board for Ireland, expressed his gratification at the possibility of an early solution of the Belfast sewage problem. If the inhabitants were becoming impatient at the length of time which had been taken in arriving at that solution they must recognise, as Professor Dunbar had pointed out, that modern problems in connexion with the purification of sewage were of extreme complexity.

Dr. J. J. PATERSON, assistant medical officer of health of St. Helens, in a paper dealing with

Measles in Schools,

said that the gathering together of children day by day from many different localities, and bringing them into close contact, formed conditions which were eminently favourable to the rapid propagation of infectious disease, but at the same time, with efficient administration, those very conditions might be turned to good account in detecting disease and in controlling its spread at the very earliest opportunity. He then gave an account of the measures adopted by the medical officer of health of St. Helens, Dr. J. J. Buchan, in connexion with a widespread outbreak of measles which occurred early in the present year. Those measures had for their key-stone a section of a private Act which required teachers in public elementary schools in St. Helens to notify to the medical officer of health any cases of infectious disease occurring among children under their charge. The exclusion of centres of infection was thus rendered possible, but in spite of prompt exclusion it was found in the end necessary to close the infant departments of a large number of schools in the town. This failure to stop the epidemic by means of individual exclusion was mainly due to the want of intelligent coöperation of parents in practising isolation of infected children. Dr. Paterson expressed the opinion that much might be done to educate public opinion in this direction by the adoption of systematic home visitation by a capable health visitor.

Dr. D. J. MACKENZIE (Glossop) said that he regretted the deletion of Article 101* from the Code, for an entire school had now to be closed in order that the Government grant might be obtained. He was of opinion that where measles had taken hold in a school there was little possibility of stopping its spread. He pointed out that in Austria-Hungary when one or two cases of the disease occurred in a class that class was closed for a period of two weeks. He considered that the reason why adults were not attacked was because they were immune from having had the disease in childhood.

Dr. W. T. BROOK FOX (Blyth) said that, as in so many other public health matters, the financial side bulked too largely, and that was one reason why there was in so many districts compulsory notification of erysipelas but not of measles. It was often only when the Government grant was imperilled that a school was closed. He expressed the opinion that there was an increasing tendency among parents to isolate the children who were infected, even before medical advice had been sought.

Mr. HERBERT JONES (Hereford) said that it was very unsatisfactory to find that even after the adoption of the admirable administrative measures detailed by Dr. Paterson, resort in the end had to be made to the clumsy practice of closing large departments of the St. Helens schools. He pointed out that there were two methods of isolating an infected person—one in which the patient was kept apart from those who were well and the other in which the uninfected were kept away from the infected. The latter method he had carried out in the Rhondda Valley and in Herefordshire by displaying in an infected house a card on which was printed in large type the name of the particular infectious disease concerned, and a request that no person should be admitted to the house except the regular occupants or those whose services were absolutely needed.

Dr. A. WALKER (Edinburgh) said that in Edinburgh there was a tendency to organise a crusade against the notification of infectious diseases, and care should be taken not to push measures of control too far. Special attention should be paid to the closing of schools at the earliest possible moment. He looked forward to the time when they would be able to lay by the heels the very illusory microbe of measles, for there was at present no evidence of the precise prodromal period of the disease. He congratulated Dr. Paterson upon having given a very useful and practical paper on a not very grateful subject.

The PRESIDENT said that the exposure of warning cards as suggested by Mr. Herbert Jones was likely to be resented in many districts.

Dr. PATERSON, replying on the discussion, said that closing a school during the incubation period was not effective in a very general epidemic on account of "mixed crops" or crops occurring at irregular intervals, and because of re-infection after opening the school. He emphasised the importance of preventing young children from becoming infected.

Dr. A. W. GILCHRIST (Nice) read a paper on the

Endemicity of Influenza,

in which he stated that a disease generally recognised as influenza had prevailed continuously over a wide extent of the civilised world during the past 20 years. Although bacteriologists had failed to assign a distinct specificity to the disease, there was no doubt as to its being susceptible of clinical characterisation and recognition. He pointed out a certain number of general analogies between tuberculosis and influenza and expressed the opinion that it was incumbent upon those responsible for the public health to inquire into the conditions which were presiding over the transition of influenza from the pandemic and epidemic into the endemic stage.

Dr. J. B. STORY (Dublin), in a paper on the

Neglect of Physical Education in Primary and Secondary Schools,

called attention to such neglect in the schools in Ireland and pointed out that in other countries, notably in Sweden and Germany, the State had made regulations for physical education. He animadverted on the fact that upon neither of the boards of education in Ireland was there a representative of

the medical profession as such. The two medical men who happened to be on the boards were there as representatives of rival collegiate institutions. He advocated the appointment of direct medical representatives.

PSYCHOLOGICAL MEDICINE.

THURSDAY, JULY 29TH.

President: Dr. T. OUTTERSON WOOD (London).

Dr. A. T. SCHOFIELD (London) read a paper on

The Present State of Medical Psychology.

He contended that the idea of the scientific use of the mind in disease by either the medical practitioner or the patient had hardly as yet in this country entered the sphere of serious medical thought, although everywhere on the continent of Europe and in the United States of America it was scientifically studied and seriously discussed. He asked whether it was in accordance with enlightened views or sound practice in medicine that a subject so fraught with powers for good and evil, which were everywhere used, should be nowhere taught. He then handed in returns which he had obtained from our 42 leading universities and schools of medicine in Great Britain and Ireland. The following were the three questions sent. 1. Have you any lectures on psychology other than those on insanity? 2. Have you any means of instruction on psycho-therapeutics or the use of the mind in medicine? 3. Have you any text-book in use on this subject? The answers received were so largely in the negative that it was quite clear that this subject formed no part of the ordinary medical curriculum. There were one or two brilliant exceptions in some of our larger schools, which showed, however, that a beginning was being made. Dr. Schofield then proceeded to remark that, although there were many optional subjects of medical study, if they were not learnt at any rate they were not practised. With psycho-therapeutics, however, it was not so, for whether he wished it or not the physician's personality reacted powerfully upon the patient, and though nowhere studied psycho-therapeutics was unconsciously practised. The eight leading psychic forces operating between the medical practitioner and the patient were then enumerated and the force and action of each were stated. They were, in brief, the practitioner's reason, emotion, and will, the same attributes in the patient, and the physical and psychic environments. Many illustrations were given of the power of the mind over the body in disease, and the paper concluded with two considerations showing the urgency of the subject. The first was the rapid increase of functional nervous diseases in which, of course, this treatment was peculiarly successful, as lately pointed out by Professor William Osler in urging the general teaching of psycho-therapy. The second consideration was the enormous increase of quackery in the centres of civilisation. Dr. Schofield quoted the concluding sentences of a leading article in the *British Medical Journal* which stated that the only way in which quackery could be destroyed was the production of an intellectual soil in which it could not grow, and it was for this soil that he pleaded, and asked that mental therapeutics might form a part of the ordinary curriculum of every medical student.

The paper was supported by Dr. T. D. CROTHERS (Hartford, U.S.A.), Dr. HELEN BOYLE (Brighton), the PRESIDENT, and others.

Dr. C. A. MERCIER (London) contributed a paper entitled

Somatic Delusions and Local Lesions.

In this paper, which was read by the honorary secretary, Dr. Mercier related the case of a man, aged 36 years, formerly a clerk, who had a persistent delusion to the effect that his bowels were obstructed. He frequently refused food on the ground that it would never pass from him. His abdomen was shrunken and his bowels were moved several times a week. He had also one other delusion—namely, that he had been ravished per rectum by a foreigner, and he further imagined that he had in this way contracted syphilis, which he regarded as the cause of his obstruction. The delusions existed for years. He occasionally did a little work, but he spent his time chiefly brooding over his misery. As he lost flesh, in spite of copious feeding, his chest was examined, whereupon consolidation of the whole of the left lung was revealed, although there was an absence of the usual symptoms. After two years' illness he died, apparently from exhaustion. At the necropsy the stomach and duodenum were found healthy, but the remainder of the small intestine was diseased, the solitary glands projecting as dark red succulent-looking nodules, with a certain amount of ulceration. The ulcers were circular, the largest about the size of a sixpence, one of which had perforated and caused peritonitis. The large intestine was normal, but on the posterior wall of the rectum, four inches above the anus, there was an irregular ulcer of the size of half-a-crown, demonstrating the unmistakable existence of recent tubercle. The liver appeared normal, but behind and below the right lobe there was a spherical tumour of the size of a cricket ball enclosed in a glistening capsule. On section its contents were caseous. The left lung was consolidated and riddled with cavities. The right lung was emphysematous and displayed miliary tubercles. The brain and other organs appeared normal. This case was a good instance of the difficulties that attended the recognition of bodily diseases among the insane. There were no pulmonary symptoms, neither were there abdominal pain or other indications of the peritonitis from which the man died. It would appear that the character of the delusions was connected in some way with the seat of the local lesions. The delusion that his bowels were obstructed corresponded with the fact that the intestines were diseased. The delusion that he had been ravished per rectum corresponded with the existence of a large ulcer in that part of the bowel. A crude hypothesis would be that the bodily disease was the cause of the delusions, but ulceration of the intestines was frequent enough without any concomitant delusion, and the lung was much more completely diseased, yet no delusion was referred thereto. A more plausible hypothesis would be that the cœnæsthetic sensations from the diseased bowel determined the localisation and character of the delusion in a person predisposed to insanity, or actually suffering from mental disorder. Many insane persons, however, were the subjects of gross disease, and yet it was rare to find that the delusions had a reference to a diseased organ. There was no reference of this patient's delusion either to the lung or to the large abscess, which probably at one time had been active, neither was there any reference of the delusion to liver or loin. There was evidence of long-existing disease as well as recent disease, but the facts seemed insufficient to warrant the assumption that such disease coloured the delusions. A third possible causal connexion between the delusions and the intestinal lesions offered itself. He (Dr. Mercier) had long insisted on the existence of a trophic function of the cerebral convolutions and on the disturbance of metabolism, sometimes widespread and shallow, sometimes restricted and profound, that attended that disorder of the function of the convolutions which was otherwise manifested in insanity. Insane persons appeared to become starved to death from incapacity of the tissues to assimilate nourishment in spite of being fed abundantly. The condition of the skin and its appendages was a frequent example in chronic insanity. Insanity consisted of disorder of conduct, disorder of mind, and disorder of metabolism, but these three were seldom proportionate to one another. The metabolic disorder in insanity was sometimes strictly localised. He had recorded a case in which all the nails of both fingers and toes were shed after an attack of acute insanity. It was common knowledge that the nutrition of tissues might be seriously disturbed by disorder of the ganglia from which their nerve-supply issued, as exemplified by the eruption of herpes, the acute bedsore of special disease, and the glossy skin of hemiplegia. He contended that the highest centres as well as the lowest and middle ranks of nerve centres exerted a trophic function. The circumstance that the delusions of the patient already mentioned had direct reference to his bowels was evidence, in Dr. Mercier's opinion, that the derangement affected with greater severity that portion of the cerebral convolutions in which the bowels were prominently represented. Following the opinion of Dr. Hughlings Jackson that in every part of the convolutions the whole body was represented, but that it was not uniformly represented, it might be supposed, though not yet proved, that there was predominant representation of the viscera. Moreover, it might well be that one viscus had predominant representation in one part of the area and another in another. In the case of this particular patient the area of convolutions most gravely disturbed was that in which the viscera were represented, and more especially in that portion in which the bowel was

predominantly represented. The derangement of function did not appear to spread widely, for there was but little disorder of mind or conduct beyond that which had reference to the bowel. The hypothesis that most commended itself to him was that the structural disease of the bowel was secondary to and consequent upon the derangement of function of the cerebral centre in which the bowel was predominantly represented. He suggested that the nutrition of the bowel was so lowered that it fell an easy prey to the tubercle bacillus and resulted in the tuberculous ulcers. The existence of a local lesion in every case of somatic delusion was not necessitated by this hypothesis. In the case in question the lesion required as much the existence of the tubercle bacillus as it required weakness of the bowel for the bacillus to act upon. Tuberculous ulceration of the small intestine was not common and of the rectum very uncommon. These organs, unlike the lungs, were highly resistant to the tubercle bacillus and needed some very special preparation to render them vulnerable. Even supposing that no organ could, until its metabolism were lowered and damaged, become a prey to the tubercle bacillus, it was certain that the failure or alteration of the nerve-supply from the convolutions was not the only condition of such failure of metabolism, so that the absence of delusion referred to the lung did not militate against the hypothesis. This last hypothesis, strange as it at first appeared, satisfied the facts of the case and was not inconsistent with our general knowledge of the operations of the nervous system, and to this he ventured to commit himself.

The PRESIDENT congratulated the section on hearing the valuable paper from Dr. Mercier, who, he regretted to say, was absent on account of ill-health.

Dr. W. R. DAWSON (Dublin) said that he was much interested in the hypotheses advanced in the paper. He was inclined to think that diseases occurring in persons of a suspicious or morbid temperament might be productive of insane delusions. He described a case of recurrent melancholia that came under his observation from time to time. The patient in question had some slight affection of the nose, which was magnified during his attacks of depression into a delusion the insane nature of which he appreciated when he recovered. Dr. Dawson said that he was not so certain of the trophic influence of the cerebral convolutions, and that even some doubt had been expressed on the trophic functions in the lower centres, as instanced in some experiments on a dog with division of the spinal cord. He quoted Professor James's theory of the emotions as bearing on the subject, and to some extent controverting the third hypothesis to which Dr. Mercier committed himself.

Dr. G. E. SHUTTLEWORTH (London) read a paper on

Mongolian Imbecility.

He said that the subject of so-called Mongolism had attracted attention, in consequence of the recent publication of papers by Dr. W. Bertram Hill, Professor Sante de Sanctie of Rome, Dr. Meltzer of Waldheim, and Dr. Babouneux of Paris, as well as in consequence of an exhibition of 14 or 15 cases at the Royal Society of Medicine. The material upon which his paper was based consisted of about 350 cases, a fair proportion of which he had previously seen in the course of his official connexion with the Asylum for Idiots at Earlswood, the Royal Albert Asylum, and the imbecile institutions of the Metropolitan Asylums Board, as well as in private practice. To the medical officers of the institutions mentioned (and to others) he was indebted for up-to-date particulars and statistics, and especially to Dr. D. W. Hunter, assistant medical officer at the Royal Albert Asylum, Lancaster, for a valuable collection of illustrative photographs. After glancing at the history of the subject and suggesting that till within the last 40 or 50 years the Mongolian type of imbecility had been confused with cretinism, he said that the credit of pointing out the distinctive features of this type was due to Dr. John Langdon Down, who in 1866 propounded a theory of ethnic degeneration occurring in children of European parentage, of which the Mongolian was the most striking instance. The facial aspect with obliquely placed palpebral fissures, squat nose, fissured lips and brachycephalic head, furnished with sparse wiry hair were some of the points of resemblance to the Mongol or Kalmuck characters, though there was an absence of the high cheek bones so marked in the latter. Curious abnormalities of hands and fingers were seen in Mongolian imbeciles, although they did not exist in real Mongols. However, the resemblance to these Easterns was sometimes so striking as to suggest to the lay mind the *sobriquet* of "John Chinaman" as appropriate to a feeble-minded boy of this special type. The type was a fairly common one amongst imbeciles in England. Dr. R. L. Langdon-Down said that it was seen in 10 per cent. of his cases, and in the large English institutions it figured in about 5 per cent. of the inmates. The frequency of the type was probably less in France, Germany, and Italy, but in Scandinavian countries and in some, at least, of the American institutions for the feeble-minded it was as great as in England. With regard to the etiology of this condition, it seemed likely from the institution and other statistics in his possession that the preponderant causative factor was the reproductive exhaustion of the mother, who in a large proportion of cases were approaching the climateric, and in others was debilitated by illness, &c., during pregnancy. Mongols were in a majority of cases the last children of long families; occasionally, however, they were the first-born, procreated at a time when (as Dr. G. F. Still has suggested) the reproductive function of the parents might not have been established in full vigour. Dr. Shuttleworth cited numerous figures as supporting the above views—e.g., at the Royal Albert Asylum the mothers of 41 Mongol children out of 120 tabulated cases were over 40 years of age, and out of 107 tabulated 68 appeared to be last-born children and 12 to be first-born; at Earlswood 46 out of 98 Mongols were stated to be last-born. As already mentioned, 41 mothers of Mongols out of 120 cases at the Royal Albert Asylum were over 40 years of age; of these mothers, one was stated to be 47 years of age, three to be 46 years of age, and six to be 45 years of age at the date of birth of the Mongol child. Statistics differed as to the influence of neuropathetic heredity in these cases. Dr. Hjorth and Dr. Carson traced but little in their cases. At Earlswood it was stated to exist in about 25 per cent. Personally Dr. Shuttleworth, forming his judgment on private rather than on institutional cases, was inclined to attach considerable importance to this factor. With regard to the etiological influence of parental syphilis, his experience did not coincide with Dr. G. A. Sutherland's experience, that it was a frequent factor, and the statistics of the Royal Albert Asylum, of the Keller Institute, and of the Eastern Counties Asylum lent no support to that view. Dr. Shuttleworth had not been able to trace many cases to parental alcoholism, though maternal alcoholism might well prove to be a causative factor. With regard to family history of tuberculosis, formerly considered a frequent cause, his present statistics did not confirm the view he formerly held, that the taint was more especially marked in Mongolian as compared with other imbeciles, though they fell victims to tuberculous disease in greater ratio than the latter. He was inclined to think, however, that any depressing influence, toxic or otherwise, affecting the mother during generation might tend to the production of "Mongol" offspring. Amongst the anatomical peculiarities which characterised the class Dr. Shuttleworth mentioned brachycephalism, oblique trend of orbits, the scored papillated tongue, the lax ligaments, and muscular hypotonia. The hands, with short, sometimes incurved little fingers, and the feet with exaggerated cleft between big toe and the next, were also characteristic. Imperfections of the heart had been frequently observed, but as a rule the thyroid and thymus glands were normal, thus differing from cases of sporadic cretinism. Macroscopically the brain, which was often of fair weight, had coarse convolutions, with deficiency of secondary convolutions, and annectant gyri, the sulci being shallow, and microscopically Bourneville had remarked "rarefaction of cells" and thinning of the fibres of the Exner net. As with the physical so also was there a resemblance of mental characteristics, such as general backwardness of development, want of originality, but remarkable imitativeness. This latter quality was an aid in training, and, as a rule, Mongolian imbeciles, excluding of course low grade cases, were capable of some amount of education, and even of some degree of industrial usefulness of a simple mechanical kind. But (as Dr. C. H. Fennell had remarked) the early promise of improvement was usually more than the eventual performance and the expectation of life in these cases was even less than in other imbeciles, owing to their proneness to invasion by tubercle, especially about the age of puberty. Their conclusions might be briefly summarised as that of permanent "immaturity."

Dr. R. L. LANGDON-DOWN (Hampton Wick) showed some interesting print impressions from the hands of Mongolian imbeciles, the chief lines being two in number instead of the usual three. The deficiency of stature he estimated as due to the short neck and proportionate decrease in the length of the extremities as compared with other imbeciles. He regarded the condition of the jaw and palate as being accentuated by mouth breathing, which was common. He frequently found that Mongolian imbeciles were born after a prolonged rest from child-bearing.

Dr. C. CALDECOTT (Redhill) referred to the fact that most Mongols died before the age of 20 years. In his experience at Earlswood he had only seen four cases over that age, and then the characteristics tended to disappear. In the records of the 158 cases that had died there were only two in which any doubt existed as to tubercle being the cause of death. He considered that thyroid treatment in these cases was highly detrimental.

Dr. SHUTTLEWORTH, in reply, said that he did not find tubercle quite so rampant in private practice in these cases, but admitted that Mongols were prone to invasion by tubercle and frequently died therefrom.

FRIDAY, JULY 30TH.

Dr. W. R. DAWSON (Dublin) opened the day's discussion with a paper entitled

"*Considerations upon the Report of the Royal Commission on the Care and Control of the Feeble-minded.*"

He said that in his opinion the state of affairs revealed by the investigations of the Royal Commission was exceedingly unsatisfactory. Even in England it was found that 0·83 per cent. of the population suffered from mental abnormalities of some form or other, of whom a considerable proportion—about a fourth—required immediate provision; whilst in Ireland the proportions both of mental defect and of undealt-with cases were much larger. There was, therefore, urgent need that some attempt of an organised and coördinated kind should be made to deal with the whole class of mental defectives. In considering the problem before them the fundamental idea adopted by the Royal Commission was the duty of the State to protect all persons who were prevented by mental defect from taking part in the struggle of life, and to include their property within the scope of its protection. The work had to some extent already been performed by a number of different agencies, but the Poor-law authorities had been paramount in dealing with the uncertified cases in the lesser degrees of mental defect. The evidence showed that the Poor-law had been most inefficient in this connexion; that it was mental defect and not any social circumstances arising therefrom which constituted a claim on the commonwealth; and that the very varied character of the different classes of defect and the highly special nature of the methods of dealing with them rendered it essential that these cases should be in the hands of a special department, with a strong central authority directing, controlling, and coördinating the whole. He was in hearty agreement with this conclusion of the Royal Commission and with the view that the central authority should be primarily medical. The peculiar social consequences of mental defect rendered it necessary that there should be close coöperation between the judicial and administrative authorities, and therefore the amalgamation of the Lunacy Commission with the Chancery Visitors in forming the central authority seemed to be justified. The Royal Commission desired to retain as local authorities the present county councils, while checking any retrograde or undesirable tendencies on the part of these bodies by the power of the central authority. The management of the institutions, he considered, might be left in their hands subject to certain restrictions, but the asylum medical service should be turned into a State service on similar lines to those recommended for the Irish Poor-law medical service, whereby it was suggested that the appointments should be made by a central council as the result of examination, and that the salaries of the medical officers should be paid from Imperial funds, leaving the management in other respects in the hands of local bodies. Regarding the detailed recommendations he thought that some were open to question. Thus he doubted whether "oversight"—which apparently was equivalent to registration only—or even certification would be of any use apart from detention in providing care and control. He accepted with some criticism the change in nomenclature, substituting the terms "mentally defective" and "hospital" for "lunatic" and "asylum." The history of the institutional treatment of insanity showed a continual effort to mitigate the unpleasant sound of the terms used in connexion with it. The classification of the mentally defective into nine groups he deemed unnecessarily elaborate. Thus the separation from the class of "persons of unsound mind" of "those whose mental abnormality happened to be due to age or decay of their faculties" was devoid of utility. Likewise the moral imbeciles and mentally defective epileptics, inebriates, and deaf and dumb, or blind, might be merged with the other idiots, imbeciles, and feeble-minded. Thus four classes would suffice—viz., "persons of unsound mind," "idiots," "imbeciles," and "feeble-minded," the last three differing only in degree. The constitution and powers of the central authority seemed upon the whole satisfactory, especially the preponderating importance assigned to the medical element and the provision for increased inspection. Those at present connected with the Chancery Division apparently were opposed to amalgamation, but it was to be hoped that their objections would be overruled in the promotion of what it was proposed to call the Board of Control, which might be developed in Ireland as well as in the sister countries. He advocated the appointment of assistant Commissioners and also that of certifying medical practitioners, the latter to act on behalf of the county councils. Experience had taught him that it was far less easy to decide upon the status of a case of feeble-mindedness than was usually supposed, and that with the increased work thus created a special body of practitioners would be required. He questioned the procedure as regards the adoption of plans and estimates for buildings as being cumbrous and involving undue expense and delay. The submission of plans and estimates first to the Board of Control, next to the Local Government Board, next to the Secretary of State, and finally back to the local authority, was surely unnecessary. He agreed with one of the Commissioners in his objection to the system of compelling medical practitioners and other public officials to notify to the local authority all cases of mental defect coming to their notice, unless public assistance was required. Such a procedure was too inquisitorial and would give rise to friction in practice. He approved of the suggestion that patients liable to frequently recurring attacks such as would be likely to relapse should be reported on and dealt with specially. In connexion with the admission of patients he approved of Dr. J. C. Dunlop's objection to the proposal that the judicial authorities should be given some discretionary power as to the method of disposal of mentally defective persons. He regarded the intervention of the judicial authority as unnecessary in the great majority of cases. In Ireland there had never been intrusion of the judicial element as regards paying patients and no disadvantages or abuses had arisen from its absence. It, moreover, tended to getting patients under special treatment in the early stages and thus promoting their recovery. He urged that the difference existing in Ireland as regards procedure for public and for paying patients should be retained if the judicial authority was really indispensable for the former. The recommendations that the education and training of defectives be removed from the control of the ordinary education authorities received his approval. He also urged the desirability of creating special classes rather than special schools in the first instance. He believed that in Ireland, at all events, much greater difficulty would be experienced in getting parents to send their children to the latter, while the former had advantages in the case of transfer of pupils to and from the ordinary classes. The recommendations regarding the criminal and inebriate and epileptic mental defectives might be accepted. He also concurred in the advice that institutions for sane epileptics should be under the same control, and he ventured to suggest that the institutions and homes for sane inebriates might also with advantage be placed under the same control. He had hoped to find the system of family care in the treatment of the mentally defective more highly recommended. The value of this system, so easy of introduction, so elastic, so successful wherever fairly tried, and so inexpensive, had escaped proper recognition. He considered the report a monument of industry and a mine

of information, and said that it should awaken the nation to the existence of its mental defectives and should promote legislation for their proper care and control.

Dr. SHUTTLEWORTH (London) referred to the history of the Education Act of 1899, which was legislation for defectives not to be graded under the Idiots Act. It failed, however, as being permissive only and not compulsory, and the result was that probably only one-third of the cases were dealt with by the authorities. Moreover, the defectives on reaching the age of 16 years had no authority to care for them. He objected to classing cases of feeble-mindedness of a mild character under the general heading of mental defectives, which in its modern connotation was to include lunatics. He thought it might prevent parents from consulting their medical attendants from fear of official interference. He also mentioned that many children, although subnormal at the age of six years from immature development, were quite normal at the age of eight years, and that they would needlessly be classed with mental defectives.

Dr. W. J. MAGUIRE (Belfast) said that speaking from the physician's point of view he hoped that wards would be set apart for mental cases in the general hospitals. There was at present only one institution for imbeciles in Ireland—namely, the Stewart Institution, with 100 beds. Places were needed where mental defectives could earn their living under supervision.

Mr. P. J. FAGAN (Dublin) said that he spoke as one of the inspectors of reformatories in Ireland, having under his cognisance about 8000 children, taken from the waifs and strays of society. He referred in terms of approval to the Government offer to increase the grant from 5*s.* to 7*s.* per week for mental defectives, which would enable the managers of schools to deal with the whole group adequately. Many cases, coming as they did from a miserable environment, required practical training rather than book knowledge and were improved thereby.

Dr. E. C. BIGGER (Dublin) said that his experience as a Poor-law inspector taught him that Ireland was behindhand in the care of the feeble-minded. Many, he considered, might become good citizens if properly looked after in early life. While so much was being done in asylums, too little was done in preventive measures.

Dr. CALDECOTT spoke of the work achieved at the asylum for idiots at Earlswood during the past 60 years. All types of feeble-mindedness from the minor to the deeper grades were received at that institution. He considered that its special schools and shops were even better than those of the London School Board. He deprecated certain of the recommendations as tending to curtail voluntary effort and he thought that the financial considerations had been greatly under-estimated.

Mr. C. S. MORRISON (Hereford) expressed a hope that what was at present voluntary in the Education Act for defectives should with future legislation become compulsory.

Dr. J. M. MACCORMAC (Belfast) stated that he saw many cases of incipient insanity at the hospital for nervous diseases, and he considered that many cases might be saved if taken proper care of in early childhood.

The PRESIDENT commented on the difficulty experienced in providing for the large group of the uncertified mental cases and regretted that no proposals had been submitted by the Royal Commission for dealing with the ordinary inebriate, who was commonly regarded as sane yet was incapable of taking care of himself.

Dr. DAWSON, in his reply, estimated that there were about 10,000 mentally defective children in Ireland for whom at present there was no provision.

The PRESIDENT, in terminating the proceedings, expressed the gratification of the section at the presence in it of Lady Aberdeen, who had done such good work in connexion with tuberculosis amongst the poor in Ireland, and he trusted that she would extend her sympathetic help in the alleviation and better care of the mentally defective, which was a question of national importance.

LARYNGOLOGY, OTOLOGY, AND RHINOLOGY.

THURSDAY, JULY 29TH.

President, Dr. STCLAIR THOMSON (London).

Dr. P. WATSON WILLIAMS (Bristol) gave a demonstration on the cadaver of his modification of Killian's radical operation on the frontal sinus and ethmoid cells. He showed the different stages of the operation and demonstrated the steps as he proceeded, pointing out the dangers of entering the cranium through the olfactory plate, and the means of avoiding them, which his operation afforded, by giving a full view of the whole field and by keeping external to the middle turbinate. The operation consisted in the formation of an osteoplastic flap which was turned outwards to enable the interior of the nasal passage to be seen and treated accordingly. The ethmoidal cells could be removed and no pockets were left without inspection, as in the case of Killian's method; there was also practically no deformity as a result. The first step was to take a radiograph of the frontal sinuses to see their extent, as they were entered from the anterior wall. The first incision was made over the previously shaved eyebrow, the inner end curving slightly downwards to the centre of the root of the nose. The incision should not go through the periosteum. This cut was subsequently prolonged vertically downwards in the middle line to the lower end of the nasal bones. The soft tissues were retracted and the periosteum incised and reflected as much as necessary to gain entrance to the frontal sinus at its inner and anterior aspect. As much as required of the anterior wall and floor of the sinus was then removed. The subsequent prolongation downwards of the incision at its inner end was then made, the knife being here carried right through the periosteum to the bone, and at its lower end was pushed through into the affected side of the nose just external to the septum and made to cut upwards as far as it would go, the remainder being severed with a specially bent saw right into the sinus. A slightly curved incision of about half an inch in length was then made through the tissues down to the bone beneath the lower orbital margin of the same side, its inner end commencing just in front of the anterior lacrymal crest, the lacrymal sac being turned outwards and an opening made here into the nose. By means of a bent probe-pointed saw or a Gigli this opening was connected with the fronto-nasal duct subcutaneously, the nasal process of the superior maxilla was then divided subcutaneously in a similar manner, the bent saw being passed from the opening in the region of the lacrymal sac into the anterior nares. This then freed the osteoplastic flap, consisting of the nasal bone, the nasal process of the frontal and superior maxillary bones, together with that small piece of the frontal which joined the superior maxillary nasal process. The facial artery was left intact. The flap was then turned outwards, and the interior of the nose and the anterior ethmoidal cells brought into view. These latter could be removed, also the posterior cells, and the sphenoidal sinus made visible if necessary. The important point in these further procedures was to keep external to the middle turbinal, a small portion of which should be left as a guide. The flap was then replaced and the operation concluded. A good forehead illumination was essential.

Dr. G. WILLIAM HILL (London) also gave an interesting demonstration, illustrated by photographs and diagrams, copies of which were given to members present, of his method of operating upon the larynx and the application of radium to these parts through a Brüning's tube by direct vision.

Dr. BRYSON DELAVAN (New York) also demonstrated Hay's pharyngoscope for the examination of the posterior nares and larynx. The instrument was based upon the principle of a cystoscope and consisted of a vertical shaft which served as a handle and a horizontal portion which served as a tongue depressor, the distal portion of which contained a small lens and electric lamp, the light being conducted along this to a suitably arranged eye-piece in the manner of the cystoscope. The small lens could be rotated so that any portion of the naso-pharynx or larynx could be examined. It was most useful for cases where the mouth could not be opened or when the patient was lying in bed. Of course, it was of no use for operative purposes. It was made by the Wappler Electric Controller Company, New York.

The Section then joined with the Section of Hygiene and Public Health to discuss

Latent Infections of the Diphtheria Bacillus and Administrative Measures required for dealing with Contacts.

This discussion is reported under the proceedings of the Section of Hygiene.

FRIDAY, JULY 30TH.

Mr. H. LAMBERT LACK (London) read a paper on

The Treatment of Cicatricial Stenosis of the Larynx.

He said at the outset that he would confine his remarks

mainly to those cases of cicatricial stenosis of the larynx in children which occurred after diphtheria when tracheotomy had been performed, as in most of them the tracheotomy tube had been inserted in or near the larynx. He considered that diphtheria had no direct connexion with the stenosis, but that it was secondary to the irritation and injury caused by the high tracheotomy. Personally, he had never seen stenosis follow a tracheotomy lower down. The amount of stenosis varied from a slight fibrous thickening to an impermeable stricture. The treatment he adopted was to do a low tracheotomy, and to remove the other tube, allowing this wound to close, and, if the original tracheotomy had been performed within a few weeks, the probability was that the laryngeal condition would quickly recover without further treatment. The tube in the trachea should then be blocked for longer and longer periods until the child breathed easily, when it should be blocked night and day. This might take from one to three months. He had previously tried a combination of dilatation of the larynx together with a low tracheotomy, and for this purpose he used T-shaped tubes for the upper opening, but it was found impossible to keep them clean, and he came to the conclusion that the improvement was due to the low tracheotomy, which was the only treatment he now adopted for such cases. Of course, recovery would not occur in cases attended with extensive sloughing or with necrosis of cartilage. He had since tried intubation, but had not obtained any benefit from it. With reference to almost impermeable strictures, he had hitherto regarded them as hopeless and that such patients were condemned to wear a tube all their lives, but he looked forward to the subsequent speakers for help in this direction.

The PRESIDENT remarked that the subject was one of the most interesting that had been brought before the section, and that hitherto its treatment had been one of the most difficult problems of the laryngologist. They had just heard the opinion of one of the foremost British laryngologists, and he was to be followed by Dr. Delavan, who would give them the latest experiences of intubation, which method had been, except in fever hospitals, neglected in Great Britain. Finally, they would have the benefit of hearing the views of Dr. Delsaux, than whom none was more capable of describing tracheo-laryngostomy, and, finally, they would hear Dr. Mayer, of the land of O'Dwyer.

Mr. LACK, in reply, said that he had generally been able to remove the tube in from one to three months. He passed round for inspection one of the plugs which he used in his earlier methods. He had found that an intubation tube introduced from below was more comfortable than one inserted from above; he also gave illustrative cases of treatment in this respect.

Dr. BRYSON DELAVAN (New York) then read a paper on

The Treatment of Cicatricial Stenosis of the Larynx by the Methods of O'Dwyer and Rogers.

He said that, in his opinion, three things were essential in the successful management of these cases—namely, relief of the stricture, permanence of such relief, and as little injury to the parts as possible. He referred to methods previous to O'Dwyer, whose character and attainments he considered worthy of the highest regard. He thought that O'Dwyer's method comprised all the advantages, and none of the disadvantages, of the previous forms of treatment, and this had been shown abundantly by the brilliant series of cases reported by Dr. John Rogers. He referred to certain anatomical factors upon which the principles of intubation were based, and believed that cutting operations would only result in ultimate failure, because of resulting adhesions, even after long-continued dilatation and supposing that cicatrices were also excised. He stated that scar tissue in general when subjected to long-continued stretching would finally lose its resiliency, and it was upon this fact that intubation was based. For this purpose each case should have its own tube specially modified to suit the individual requirements, and the instrument should exert steady and continuous pressure upon the contracted tissues for at least one year. There were various "normal" tubes designed by O'Dwyer from casts to fit average larynges somewhat loosely, and these must be modified to suit the individual larynx, when the acute period had passed away, by passing under general anæsthesia different sizes until one was obtained which the operator considered would effect the desired result without causing sloughing. Then a special tube was made of a suitable length and with a retaining swell, which occupied the space at and below the cricoid cartilage, of the same size as in the trial tube. The neck of this special tube, which pressed upon the hypertrophied intra-laryngeal tissues, should have its transverse diameter $\frac{1}{16}$ inch smaller than the retaining swell or it would be coughed out, while the head, which rested on and in the aryteno-epiglottic folds, must have a diameter $\frac{1}{16}$ inch greater than that of the retaining swell, otherwise the tube would slip into the larynx. These measurements applied to hard rubber tubes, but with metal ones the head should be still a little larger. Occasionally a tracheotomy was essential when there was danger of the tube being coughed out, as occurred at times with hypertrophic laryngitis. Various tubes were here passed round for inspection, including a plugged or clamped tube which consisted of a removeable right-angled piece passing through the tracheotomy wound and screwing into the one already described, which effectually prevented its being coughed out. Tracheotomy should only be performed if absolutely necessary. Vulcanised rubber was an ideal material for a tube, and should first be tried, but occasionally metal was better. He referred to several clinical cases in which recovery required from one month to a few years, two years being perhaps a fair average, and he contended that no other method had yet been tried for a sufficiently long period of time to enable any definite conclusions to be drawn from it. He referred to a temporary spasm of the adductors after removal of the tube which might lead the surgeon to think that the condition was unchanged, but general anæsthesia would determine whether the dyspnœa was due to fibrous stricture or to spasm.

Dr. DELSAUX (Brussels) read a paper on

Tracheo-laryngostomy in the Treatment of Cicatricial Stenosis of the Larynx and Trachea.

He defined it as a large opening of the larynx and superior part of the trachea made permanently or at least for a long period. He excluded cases of tubercle and lupus, and thought that bronchial catarrh was a contra-indication, but considered it possible in all other cases of cicatricial stenosis of the larnygo-tracheal tube. He referred to the care required in preparing for the operation and to disinfection of the mouth and teeth. The operation could be performed under either general or local anæsthesia. The head should be held by an assistant in Rose's position during the whole of the operation. He indicated the instruments required and emphasised the importance of a good frontal mirror. He divided the operation into the following six stages: 1. The preliminary incision extending from the previous tracheotomy wound to the upper margin of the thyroid cartilage. 2. The longitudinal division of the trachea and the cricoid and thyroid cartilages, together with the thyroid isthmus. 3. The suturing of the mucous membrane of the larynx to the skin. 4. Excision of the scar tissue. 5. Introduction of a dilator and cannula, the latter having, of course, an opening at its upper part. The dilator was a rubber tube which should exceed the diameter of the trachea. Fournier introduced his cannula through a hole in the dilator. Some preferred gauze for the dilating material during the first few days, afterwards inserting a rubber tube, so that the patient could learn to breathe again through the natural passages. 6. Dressing of the wound and of the cannula to keep it in position. The inner cannula should be frequently cleansed and boiled and the dressings removed as often as necessary. The mouth must be frequently cleansed. The epidermis soon commenced to grow along the granulations which lined the new laryngo-tracheal conduit. The dilatation should be continued for a period varying from a few months to a year or longer, and when all the raw area was covered with epidermis the upper part of the wound might be allowed to heal, and later a plastic operation would of course be necessary and should be done at once without any safety opening, when the patient could breathe easily through the nose and was not out of breath when running. The methods that could be used in closing this aperture were next described, either with square flaps of skin or flaps elliptic in shape sutured in the median line with the skin turned inwards. A synopsis of the results of 36 cases was then given.

Dr. EMIL MAYER (New York) read a paper on the

Treatment of Cicatricial Stenosis of the Larynx.

In this paper he instanced three unusual cases in which tracheotomy had been performed. He used intubation and

exhibited a special hollow handle so designed that the tubes could be passed slowly, the patient breathing through the handle all the time—one case required two minutes for its insertion. The introducer, which was here passed round for inspection, was an excellent one for the purpose. He referred to the right-angled screw attachment of Dr. Rogers of New York, previously described by Dr. Delavan, and passed one round for inspection, emphasising the importance of carefully arranging that it should be fixed in the correct position in the intubation tube, so that there should be no tension upon the tracheotomy wound. Dr. Mayer's first case was due to a bullet which entered the temple, passing downwards through the soft palate into the thyroid gland and then into the œsophagus; it dropped into the patient's stomach and was finally passed per rectum. The second case was due to post-typhoid perichondritis, and the third case was one of granuloma of the larynx, which had been previously operated upon. These were both successfully treated by intubation.

Dr. HILL described a laryngeal splint which he had devised for preventing transverse webs and cicatricial bands in the larynx from being reproduced after removal, instancing a case. The patient had satisfactorily worn it for about three weeks. The splint was passed round for inspection.

In the discussion Dr. A. LOGAN TURNER (Edinburgh) referred to the difference between the American treatment by intubation and the European by the knife. An objection to the former was the prolonged period necessary in some cases for using the tube. He had had trouble in one of his laryngo-tracheoscopy cases from œsophageal fistula, which had interfered with the maintenance of the lumen of the trachea. In case of post-operative stenosis following laryngo-fissure he thought that fibrolysin used locally might be of service.

Mr. H. S. BARWELL (London) referred to Schrötter's method of intermittent dilatation which had been successful in his hands. One reason why he had avoided intubation was his idea that the tubes required frequent removal and re-insertion.

The PRESIDENT said that in his opinion one lesson to be learned from the papers was the sufficiency in certain cases of a low tracheotomy in curing, and better still in preventing, the post-diphtheritic cases. Another lesson was the death knell of Schrötter's tubes, for those of O'Dwyer would do all that Schrötter's tubes could do and even more. Another lesson was the promise held out by laryngo-tracheostomy. He laid stress upon the benefit which the successful treatment of such conditions would confer on society, instancing the case of a little girl whose social life was being sacrificed due to want of laryngeal function.

Dr. DELAVAN briefly replied, and showed a concealed knife for the division of cicatricial bands in the anterior commissure. He stated that intubation could not be mastered in a few days, and that he thought it better for one or two specialists in large centres of population to become proficient, so that they might send such cases to them.

Dr. DELSAUX, in his reply, said he thought that the epidermis took up the character of mucous membrane. He had had no good results from fibrolysin. To prevent any secondary stenosis a piece of cartilage might be inserted prior to performing the plastic operation.

Dr. R. H. SCANES SPICER (London) read a paper upon the

Relationship of Cancer of the Throat to Abdominal and Thoracic Breathing,

which depended, amongst other things, upon posture and distension of abdomen. He illustrated his remarks upon a model made for the purpose.

Dr. R. H. WOODS (Dublin) showed a patient whose larynx he had extirpated, and exhibited a method which he had adopted for enabling the patient to speak. For this purpose a reed was introduced into the distal end of a tube which was carried from the tracheal opening through the nose into the pharynx, by this means reinforcing the resonance of that cavity for vowel sounds.

A short paper by Dr. J. HARDIE NEIL (New Zealand) was read by Mr. G. A. BARTON (London), on the

Surgical Anatomy of the Tonsils,

in which the author differed from Dr. D. R. Paterson as to the downward extent and relationships of the supra-tonsillar fossa.

A vote of thanks to the President concluded the work of the section.

NAVY, ARMY, AND AMBULANCE.

WEDNESDAY, JULY 28TH.

President, Fleet-Surgeon J. LLOYD THOMAS, R.N.

The PRESIDENT delivered an address of welcome to the members of this section.

Colonel H. E. R. JAMES, R.A.M.C., communicated a paper entitled

"An Account of the Officers' Training Corps, with Special Reference to its Medical Branch."

He said that for reasons of expediency it was obviously unnecessary to maintain the medical establishment of the army at war strength during times of peace, and upon the outbreak of war upon a large scale a call would be made upon the civil medical profession for the completion of the medical establishment of the expeditionary force. About 50 per cent. of its medical complement would consist of medical men not of the regular army medical service, and the existing reserve was totally inadequate to provide this number. A "special reserve of officers" was designed to meet the case, but under the most favourable conditions it was unlikely to produce the large body of officers required, as many men were loth to bind themselves to undertake war service in prospective, while it was also obvious that a man knowing nothing of the medical service must be at a great disadvantage under conditions of field service. Therefore the giving of a free hand to schools and universities without binding the recipients to service was a measure which promised well, even if it should not fill the special reserve and the Territorial Force as was hoped. That was the origin of the officers' training corps. The general object of the organisation was to provide officers for the regular army, for the special reserve of officers, and for the Territorial Force, and its method of working was to give a standardised measure of military training to boys and young men of the educated classes at schools and universities. The university contingents formed the senior and the school contingents the junior division of the officers' training corps. No physical examination was imposed, the only regulation being that the cadet shall be able to perform his duties to the satisfaction of his commanding officer.

Lieutenant-Colonel R. PORTER, R.A.M.C., read a paper on

Physical Training of Recruits in the Army.

He said that the object of physical training should be to increase intelligence, quickness of movement, power of endurance, and keenness for work; in other words, physical training meant the gradual training of the heart and lungs to accommodate themselves to the demands of muscular exertion, and the undertaking of fatiguing exercises without undue distress. The recruit on joining the army at the age of 18 years was not physically fit to undertake the duties of a soldier without considerable preparation, and it was by this system of physical training that he was prepared for the strenuous and active life which was now required of a soldier. In carrying out these exercises his body was gradually and harmoniously developed, faulty postures were corrected, and at the end of his training his standard of physical fitness was enormously increased. All this was done without any undue strain to the body, and in practice it was found that generally recruits after three or four months' training improved in weight, chest capacity, and the harmonious working of heart and lungs was well seen in their power of running one mile without distress, as shown by their respiration and pulse-rate. The methods by which this training was carried out were based on the Swedish system, which had been introduced into the British army within the last few years, and differed entirely from any system of physical training previously employed in England. The methods in vogue in the army a few years ago, and indeed in the universities and schools, were very unscientific and opposed to all physiological laws. They tended to produce a state of abnormal muscular development. What was aimed at now was the harmonious development of the whole body without strain to muscular, respiratory, or circulatory systems. Great care was taken to avoid hurry in physical training. It was impossible to obtain good results by cramming more work into the same or less time. The object aimed at in these physical exercises, particularly of the arms and legs, was not exactly the development of the different muscles engaged, but their increased efficiency and power of resisting fatigue. Generally speaking, in all recruits the

trunk muscles required development to correct faulty postures acquired in civil life. Stability was necessary if work was to be performed efficiently and economically, therefore the muscles which maintained stability must be systematically developed. Over-distension of the chest was injurious, as it was liable to diminish the elasticity of the lungs and render them less efficient. But exercise performed with a good carriage of the spinal column and directed towards securing the coördinate working of the heart and lungs was in the highest degree beneficial. The judicious and progressive employment of marching, running, jumping, and kindred exercises was the best means of obtaining true coördination. The usual time occupied in training recruits so as to prepare them for the active work of a soldier was six months—namely, three months at the regimental depôt and three months after joining their respective battalions. During this time they were constantly kept under medical supervision, and if it was seen that at any time the work was too severe or likely to produce strain in any individual he was put back to a class where the exercises were more simple and work less severe.

This paper was discussed by Colonel T. H. HENDLEY, I.M.S. (retired), Staff-Surgeon E. COX, R.N., and the PRESIDENT, after which Lieutenant-Colonel PORTER made a brief reply.

Colonel T. H. HENDLEY, C.I.E., V.D., I.M.S. (retired), read a paper entitled

"*A Contrast between the Treatment of the Wounded under the Mogul Emperors and King Edward the Seventh, Emperor of India.*"

He said that in the time of the Mogul Emperors surgery was left to quacks or barbers, and in India to jarahs, who were combinations of both. They used salves, or plunged stumps into boiling oil, especially after gunshot wounds, which were regarded in India, as in Europe, as being poisoned. The real difference between the old and new conditions in India was that in the past there was no system; in the present the State had made itself responsible, though it must be assisted by individual effort. The main principles of the present methods were—to follow up the fighting line so that the wounded might be succoured as soon as possible after they fell; their speedy, and, as far as might be, comfortable, removal to a place of comparative safety, and then to some place at which they could be properly treated in view of returning them when fit at the earliest date to the front. When the casualties were few and not widely spread relief could usually be quickly afforded by trained persons; but if a man fell at a distance from such skilled assistance and the battle was a great one, it would be impossible to attend to all who fell even for some hours. In such cases the only hope for the individual was that his comrades or even he himself might be able to afford what was so appropriately termed "first aid." Briefly, this was to stop hæmorrhage, to apply first dressings to wounds, to put broken limbs into a position of safety, to relieve thirst, and to assuage pain by the use of sedatives, and then to arrange as soon as possible for removal from the danger zone. He desired to urge with special force the regulations which provided that every soldier should be taught so much. His own life and the lives of his comrades might depend upon his possessing such knowledge. If the "first aid" was properly understood and rendered, the experience of modern war, and especially of the Japanese war, showed the chances of recovery were enormously enhanced, and further that satisfactory "first-aid" treatment was usually sufficient to make a soldier safe until he could be transported to base hospitals, even if they were at several days' distance. So important was this training that there should be no shirking it, for every man who had not acquired it was a danger to others and a source of weakness to the army.

Lieutenant-Colonel PORTER said that the Royal Army Medical Corps was now well organised, and he thought that in future this work should be left in the hands of the field ambulance.

Lieutenant-Colonel E. M. WILSON, R.A.M.C., thought that possibly there might be a tendency to teach the rank and file of the army more than was absolutely necessary in first aid and ambulance duties. He thought that it would be best to limit the training to first aid only and the application of the first field dressing, which every soldier carried.

Colonel HENDLEY, in reply, said that soldiers should have some knowledge of first aid, and it was not intended that they should take the place of the Royal Army Medical Corps.

THURSDAY, JULY 29TH.

Fleet-Surgeon P. W. BASSETT-SMITH, R.N., communicated a paper on

The Diagnosis of Syphilis by some Laboratory Methods.

He first considered the microscopic demonstration of the *Trepenoma pallidum*, which he had not found to be of much practical use on account of the labour which it involved, although when successful he considered it diagnostic of syphilis. Turning to the macroscopic method he described the technique adopted in performing Wassermann's serum test, and some of its modifications, and concluded with the following summary of the results obtained by it. He found that almost all cases with evident primary syphilis gave a marked reaction to Wassermann's test slightly modified, using for antigen dried congenital syphilitic liver. This reaction was obtained as early as the fourteenth day after infection; in many cases admitted for chancroids the presence of a double infection was early indicated by the test; in almost all cases of early secondary syphilis with or without symptoms at the time, positive results were obtained; in late secondary stages or tertiary manifestations the results were more variable; in about 50 per cent. of parasyphilitic cases a positive reaction was present. In cases without symptoms and generally after much treatment, but with an undoubted history, a minority reacted. The reaction was specific for syphilis as far as other venereal diseases were concerned. Mercurial treatment did not appear to prevent the reaction when symptoms were present. By this method they had a valuable aid in the diagnosis of syphilis, deciding the nature of many difficult cases and early indicating the need of specific treatment.

Colonel F. J. LAMBKIN, R.A.M.C., read the following paper on

The Arylarsonate Treatment of Syphilis: its Probable Future Effects in the Services.

He said: In discussing the question of the treatment of syphilis by means of arylarsonates it is no intention of mine to compare it with that by mercury. The position of the latter is perhaps stronger now than it has ever been, for after having gone through various vicissitudes in the ups and downs of heated discussions, it has, especially during late years, been generally accepted as *the* specific for syphilis; nevertheless, there were, and are, cases which resist mercury in any form, cases to which mercury cannot be given owing to their extreme susceptibility to it, and for such the necessity of finding a substitute was all-important. At our last annual meeting at Sheffield I had the honour of reading a paper on the treatment of syphilis by arylarsonate salts, recording up to that date 54 cases so dealt with and with favourable results,[1] and it is my intention now to bring further evidence to prove the utility of these salts in the treatment of the disease. Since August, 1907, when I first began to use the arsenical compound, my colleagues and myself have treated over 130 cases with it. In these cases syphilis was represented in all forms and stages, from the typical Hunterian chancre accompanied by enlargement and hardening of the inguinal and cervical glands to cases showing the different forms of syphilitic rashes, as also others in the later stages with various forms of syphilitic lesions, including signs of commencing tabes. Most of these did remarkably well. In the cases of Hunterian chancre this soon softened and passed away, the majority showing no signs of return, and in many there were no further developments of the disease. Syphilitic rashes rapidly disappeared, ulcers of the mouth and throat healed, whilst the gain of body weight was most marked from the beginning; at the same time anæmia and cachexia cleared away. The most interesting effects of the treatment were seen in cases in the later stages of the disease, of which the following are a few:—

First case.—A. B., aged 45 years. The disease was contracted 24 years ago when he had a chancre followed by a roseolar rash and sore-throat, and later a profuse papular pustular eruption broke out over the body. He received what appeared to have been a very complete mercurial treatment by the internal method and chiefly by means of hydrargyrum cum creta. He had spent many years in the tropics; said that he was obliged to take the specific almost continuously, otherwise the disease was certain to break out in one form or the other; this had been the case for years past. When I saw the patient he was much debilitated and anæmic, suffered from periodic nocturnal

[1] See THE LANCET, Sept. 12th, 1908, p. 809. A further paper by Colonel Lambkin describing 21 cases of syphilis successfully treated with arylarsonates was published in THE LANCET of Dec. 5th, 1908, p. 1656.

headache, and was subject to a peculiar swelling and redness on the side of the nose, especially when he omitted to take mercury for any little time. On Jan. 14th, 1909, I commenced treatment, giving 8 grains of arsacetin on that day. I continued to give the same dose every second day until 100 grains had been reached. Under this the patient made rapid improvement, cachexia and anæmia disappearing; the body weight increased markedly, all swelling and the acne-looking rash on the nose vanished, and the appetite improved much. There have been no further signs of the disease. A further course of arsacetin was begun on March 1st. The patient had to go abroad then. Up to date he has had no return of the disease.

Second Case.—C. D., aged 54 years. Good physique. He contracted disease (syphilis) 30 years ago. He denied ever having a sore, but had a rash which was of a papular pustular nature. He was treated at Aachen where he went through the usual course. Since then he had had frequent returns of the disease and much internal treatment. Two years ago the tongue began to get sore and spots to appear on the body. He went under further treatment in London and had been taking medicine (hydrargyrum cum creta) almost continually ever since, the symptoms clearing up and breaking out afresh from time to time. His condition when I saw him was as follows. He was much pulled down in every way as regards general health. The tongue was deeply ulcerated on the sides and the dorsum and was marked with leucoplakia, as were the insides of the cheeks. There was profuse leucoderma on the body. A course of arsacetin was begun on Sept. 21st, 1908, and continued until 100 grains was administered. Under this course the patient did extraordinarily well: all symptoms disappeared and general health rapidly improved. No local treatment of any kind was applied to the tongue. He has had one course since then, but up to date there has been no further development of disease.

Third case.—E. F., aged 45 years. He contracted a hard sore 12 years ago, which was followed by glandular enlargements and a papular rash. He went under treatment in London and took hydrargyrum cum creta almost continuously for two years. Since then he had had many fresh outbreaks of the disease which he had combated by resorting to the same treatment. His condition when seen by me was as follows. He was cachectic and anæmic. He had a papular rash on the forehead and nose. He suffered much from neuralgic pains in the legs. The reflexes were normal. A course of arsacetin was begun on Jan. 16th, 1909, and continued until a total of 100 grains had been given. The patient rapidly improved in health and all rash disappeared. He gained 8 pounds in a fortnight. He went abroad and when last heard of had had no further symptoms.

Fourth case.—G. H., aged 34 years. He contracted syphilis in India eight years ago, having a chancre on the penis, followed by a roseolar rash and sore-throat. He went under specific treatment at once (hydrargyrum cum creta). This he continued for one year in India and 18 months at home. He went through a course of inunction at Wiesbaden and the symptoms disappeared, but the patient returned home much pulled down in health and shortly after further symptoms of disease recurred; the latter consisted mostly of mucous patches and ulcers in the mouth and on the tongue, with rupial-looking sores on the legs. He came under medical advice in London as to the question of being allowed to marry. In November, 1907, three months after the appearance of the last symptoms, a nerve specialist examined his cerebro-spinal fluid, and both he and the usual medical attendants agreed that the patient was quite free from syphilis and could safely marry. This he did in January, 1908, and six months later rupial ulcers appeared on his face and legs. He consulted a medical officer of the Royal Army Medical Corps, who sent the patient to me on Oct. 22nd, 1908. He was cachectic and much run down in health, and had a partly healed ulcer on the face, whilst there were two undoubted rupial ulcers on the calf of the right leg. He went through a course of arsacetin and all the above symptoms cleared. The course was repeated in six weeks' time and he has had no further return of the disease.

Fifth case.—I. K., aged 55 years. He contracted syphilis 25 years ago; he suffered from a hard sore, followed by a rash on the body. He went under treatment (hydrargyrum cum creta) at once until all signs disappeared, when it was discontinued. A little later he suffered much from palmar psoriasis which eventually cleared under hydrargyrum cum creta. Since then he had had very many fresh outbreaks of the disease constantly, mostly of sore throats with mucous patches on the tongue. He had taken much mercury internally. He had spent many years in India. His condition was as follows. On the lower lip there was a small ulcer which was scabbed over; this, he said, had been present for more than ten years and had been suspected to be epithelioma more than once, but was eventually pronounced to be syphilitic. It sometimes almost disappeared but always recurred sooner or later. At the angles of the mouth were cracks and fissures and there was the undoubted snail track of syphilis on the dorsum of the tongue (leucoplakia). The latter had been most persistent for the last eight years. He began a course of soamin on Sept. 8th, 1908, and completed a course of 100 grains. After the seventh injection he had an attack of colic with nausea and vomiting. The injections were omitted for three days when they were resumed, and the course completed without any further untoward signs. The lesions in this case cleared up in a wonderful manner, more especially considering their chronic and persistent nature. Three months later the patient had a course of arsacetin and up to date has had no further recurrence of disease.

These are a few of the most interesting cases treated by the arylarsonate salts. They are peculiarly interesting from the fact that hitherto their utility was doubtful as regards syphilis in its later stages. In forming an estimate as to how far these compounds are capable of preventing further ravages of syphilis it would be necessary to watch the progress of a number of cases which had been treated solely by them, which is a matter of very great difficulty, even in the army and navy, where men are continually being lost sight of owing to taking their discharge or to being transferred elsewhere. Among the cases treated I only saw slight toxic symptoms in two, and this was in the case of two patients both over 55 years of age. The symptoms consisted in one patient of slight colic with nausea and vomiting, in the other of browache and dizziness. All the other patients underwent full courses without interruption.

Preparation used.—The preparations of arylarsonates which were used were as follows: (1) atoxyl (arsonate of sodium); (2) soamin (amino-phenyl-arsonate); (3) arsacetin; and (4) arseno-phenyl-glycin (in vacuo). The first of these—i.e., atoxyl—was the original compound of arsenic which was tried for sleeping sickness and later for syphilis. With it I treated some 24 cases of the latter and with much success; no untoward symptoms occurred. Nevertheless, I was obliged to abandon it owing to the ill reports which came in concerning the danger of its use, as also after having seen four cases of total blindness which followed its use for sleeping sickness in Uganda. The second preparation, soamin, was introduced by Messrs. Burroughs and Wellcome of London. It is a sodium amino-phenyl-arsonate and almost identical with the old preparation atoxyl, except that being of a definite chemical composition and arsenical strength (which atoxyl is not), it can be administered with much greater safety and confidence than a compound liable to variation in strength as is the case with atoxyl; in other words, it is a stable preparation. Soamin has been used very extensively at the Military Hospital, Rochester-row, and with very great success, and with the exception of the two cases above mentioned none of them were followed by toxic signs. The salt is made up in solution for use and is given either subcutaneously or intramuscularly; on account of its tendency to decomposition from keeping the solution needs to be made up afresh at least daily. The dose which I have been giving is 10 grs. every second day until a total of 100 grs. has been attained. The third preparation used—i.e., "arsacetin"—was introduced by Ehrlich as an improvement on the original atoxyl.[2] He describes it as the acetyl derivative from the latter and for short called it "arsacetin." Of it Neisser remarks: "1. Arsacetin is certainly far less toxic than the old atoxyl, both healthy and diseased animals tolerating much larger doses of it than of the latter. 2. Its remedial action on syphilis was at least equal to the older preparation. [In my judgment this is quite borne out by my practical experience.] 3. No decomposition of any kind in the solutions, even when stored for a long time, could be detected; even boiling daily did not alter the solutions in any way." This preparation I use in 10 per cent. and 15 per cent. solutions. The latter has the advantage of not requiring so large a quantity of fluid for injection, consequently causing less pain than the weaker solution; on the other hand, it has the disadvantage that it deposits the salt when cold and requires to be reheated before being used, so as to bring the latter into solution again.

Dose.—I have been giving 50 minims of the 15 per cent. solution which represents 8 grains at each injection every alternate day until 100 grains have been totalled. Whether it is better to give injections on two consecutive days, or whether more favourable results would be obtained if they were given less often but in larger doses, has yet to be decided, but judging from the analogy of experience in trypanosome disease one is inclined to favour the former.

During the last year I have used arsacetin very extensively both in hospital and private practice, and not one case has shown any toxic symptom. I found that in the majority of cases it promptly removed symptoms and the patient's general condition was much improved, whilst in others it failed, and recurrences took place during and immediately after a course of it; on the other hand, it very often succeeded where mercury had failed. Its beneficial effects were most apparent in the older cases (late stages), some of which responded to it in a wonderful manner. The great disadvantage of atoxyl is that it is not stable as regards strength, also owing to the liability of its solutions to decompose, thereby forming dangerous by-products, and it cannot be denied that if the risk of optic atrophy has always to be run even after a moderate dose one would hesitate before employing atoxyl. Soamin is far preferable to atoxyl, although it is practically the same salt, the fact being that it is of stable strength and consequently its toxic effects are very limited always, provided that certain points, such as using only freshly prepared solutions of it, are adhered to and always remembering

[2] THE LANCET, Dec. 5th, 1908, p. 1658.

the liability of its solution to decompose on being stored for any time, and that they cannot be sterilised owing to chemical changes taking place on boiling. Arsacetin, besides being less toxic than either atoxyl or soamin, has the great advantage that solutions of it do not decompose on being stored or boiled, hence it is practically free from the dangers of the latter salts. Of the newest preparation—i.e., arseno-phenyl-glycin—sufficient time has not elapsed to allow of anything like a definite opinion being given; at the same time the fact of its requiring to be supplied in vacuo and the danger attached to it on its exposure to air appears to me to put it out of count for anything like general use, more especially as the little glass tubes in which it is supplied are very apt to get cracked in transit, thus exposing the salt to the air. For the present I think that the advantages are decided on the side of arsacetin. As already stated, it has been used a great deal by myself and with no untoward effects. As a rule I have employed it alone, whilst in other cases I have made use of it in combination with mercury, giving both simultaneously with very good results. With more extended experience the advantage of employing mercury and arylarsonates together in certain cases of syphilis is becoming daily more impressed on me. One thing is certain—i.e., that many cases of syphilis which responded readily to one of those agents may be totally unaffected by the other and *vice versâ*, and this without any reference to their susceptibility to either, which leads me to the conviction that there are different strains of spirochæta pallida which are affected differently by mercury and arsenic. The presence at the same time of these different strains in the same individual may explain the good which follows the employment of mercury and an arylarsonate. On the other hand, there might be an advantage in giving them both alternately. Perhaps there might be an advantage if arsacetin and mercury were employed alternately.

Contra-indication to arylarsonates.—For the present it is at least advisable to proceed cautiously with the employment of arylarsonates and to do so in those cases where no parenchymatous organic changes are observable, as it appears that already diseased or enfeebled organs are more susceptible to their toxic action, hence cases showing signs of cardiac or renal organic disease should not be submitted to treatment by these salts.

How the treatment should be proceeded with.—The question as to how to proceed with the arylarsonate treatment—i.e., as to when a second or third course should be commenced—has naturally been the subject of much thought as it could only be decided by careful observation and clinical experience. The plan in vogue at present at Rochester Row is to repeat the course in three months' time in all cases after the cessation of the first (earlier in cases showing a recurrence of symptoms), and a third course is given in six months' time in all cases, whether showing signs of the disease or not.

The arylarsonate treatment as a prophylactic.—At the meeting of the Medical Congress at Berlin, 1907, Metchnikoff made the statement that by injections of atoxyl he had succeeded in preventing further developments of syphilis in cases of undoubted syphilitic chancre and strongly advocated it as a prophylactic; the number of injections which he succeeded with was three of 10 grains each. His statement was very thoroughly tested in our army—i.e., at certain of the largest military stations every second case of venereal sore of whatever description which was admitted into hospital received four injections of 10 grains of either atoxyl or soamin and a careful record kept. The experiment showed that the injections did not prevent further developments of the disease in any way, so that from a prophylactic point of view their use must be considered a failure.

As a curative measure.—In considering the question as to the value of these arsenical compounds, either from a preventive or curative point of view, I would remark that to judge the efficacy of a syphilitic remedy from its symptomatic relieving action is wholly false, considering the proof which has been furnished by experiments on animals that these salts possess a reliable curative virus-destroying action. It is therefore our duty to utilise this experience gained with animals in the treatment of syphilis, although in the human subject we may at present not be able to produce proof that these arsenical salts are capable of eradicating the disease and can but observe their influence on the symptoms; still, there being no justification for doubting this power, we ought to make the most of this possibility. There is no necessity to confine ourselves exclusively to the use of mercury or these arylarsonates, as both will be equally useful in certain cases, either alone or when employed simultaneously.

What effect the introduction of these salts in the treatment of syphilis will have in the services it is impossible to foretell, but that they are destined to supersede mercury is most unlikely; on the contrary, I believe that their introduction will strengthen more than ever the position of the latter, as by its combination with arylarsonates it will be feasible now to deal successfully with those cases which had hitherto for some reason or another resisted it when administered alone. There is a class of case to which these arsenical compounds ought to be a veritable boon—i.e., those to which it is impossible to give mercury in any form, owing in some cases to an idiosyncrasy, in others to the patient being debilitated and broken down from climate or other tropical influences, and especially to those cases of syphilis which are deeply tainted with malaria. On the whole, I believe that the introduction of the arylarsonates in the treatment of syphilis will have an important influence in the services, as they will undoubtedly tend to lessen the admission rate as also that for invaliding. Our present knowledge of the power of these salts of arsenic over syphilis is only in a very elementary stage, but I look forward to further experience of them and improved technique leading us to that goal in the treatment of syphilis which has already been attained with dourine.

A short letter was read from Major H. C. FRENCH, R.A.M.C., in which he said that the test of benefit in early syphilis was the rapid reduction of induration in the chancre and in the lymphatic glands. He had not found soamin or arsacetin nearly so valuable for that purpose as mercurial inunction with baths.

Major G. S. CRAWFORD, R.A.M.C., communicated a paper on

The Beneficial Results of Recent Sanitary Work in Malta.

He said that if they could prove that by sanitary measures they were able greatly to reduce the number of sick they would secure the active coöperation of all ranks in the army. In Malta they had proved that beyond any shadow of doubt. There were many great advantages in keeping the army healthy. It gave the regimental officers a much better chance of efficiently training their men and fitting them for active service. It was a great saving to the State and it helped recruiting, for the reason that nothing tended more to deter men from joining the army than the state of many invalided soldiers. The paper went on to deal with Malta fever, enteric fever, tuberculous disease, pyrexia of uncertain origin, dysentery, rheumatism, and infantile enteritis.

A discussion followed in which Inspector-General R. BENTHAM, R.N., and Colonel HENDLEY took part.

Colonel P. BROOME GILES, A.M.S. (A.M.O., 1st London Division Territorial Force), read a paper entitled

"*On the Importance of the Permanent Attachment of Ample Transport under the Command of the Medical Officer of each Field Medical Unit.*"

He said that the history of war in the past and the experience of peace manœuvres not only proved but emphasised the failure of detailed transport for the use of medical units. If the transport was detailed on requisition from the Army Service Corps considerable delay was often inevitable, and even in cases of emergency hours often elapsed before the transport demanded was supplied. Whatever might be said to the contrary, there was no escaping the fact that there was a very possible element of discord in respect to discipline; the detailed *personnel* of one branch of the service could not have the same intuitive feeling of obedience to officers of another branch that they had to their own, and with hired civilian transport there was greater trouble, as civilians were strangers to discipline, generally unpunctual, and accustomed to their regular hours at their own pace. The horses generally were unfit for the work, being untrained and unaccustomed to service environment, and the harness faulty. It was a most elusive thing to think civilian wagons and harness would do for medical units, and he could not imagine anyone with practical experience advocating such procedure. The advantages of permanent transport were that the transport sections recruited for each medical

unit were homogeneous, part and parcel of the permanent *personnel*, and practically of the same social rank from which the unit was chiefly recruited. In Territorial medical units hired civilian transport could never be popular or successful. Under the present conditions men had enlisted to the transport sections keen for work, but when they realised that their practical training would be with civilian wagons and harness their enthusiasm would dwindle away. If something was not done he feared the good men would languish and their places would be taken by those who refused the yeomanry, and wanting to wear spurs would join the transport section for that inducement. They should approach the subject from two practical sides—that permanent transport was requisite for each field ambulance, and that to obtain the highest efficiency it must be part of the *personnel*, and its *matériel* must be that of the regular force. The more the Territorial unit coördinated with its Regular branch the higher the efficiency and discipline.

The PRESIDENT pointed out that though permanent transport was to be preferred nevertheless circumstances occurred which demanded the use of civil appliances.

FRIDAY, JULY 30TH.

An interesting paper was communicated by Staff-Surgeon F. F. MAHON, R.N., on his experiences when serving in H.M.S. *Minerva* off Messina, when that town was destroyed by earthquake.

Mr. J. M. CARVELL (London) read a paper on

The Existing Ambulance Organisation of the Home Railway Companies, with Suggestions for its Amplification and Unification.

He said that the course of instruction which railway ambulance men went through was in accordance with the syllabus of the St. John Ambulance Association. It extended over a period of five weeks. There were five lectures with an interval of seven days between each, followed by an examination. The examination consisted of a practical and a theoretical portion. Encouragement to take up ambulance work was given in different ways on different lines, such as rewards for proficiency, rewards for work done, additional passes, medals, certificates of honour, competitions, and prizes. The great incentive to railway ambulance work was the inter-railway shield, which was offered for annual competition by the St. John Ambulance Association. Each railway had the right to send a team of five men to compete. As to amplification, he considered that all railway ambulance men should be given an elementary knowledge of nursing and sanitation. The men's wives should also be encouraged to go through elementary instruction in home nursing and sick room cookery. In regard to transport, all guards' vans should be suitably fitted for emergency ambulance work. In his opinion the easiest method of unification would be through the St. John Ambulance Association. All railway companies which had not already done so should form centres of the association and a home railway committee should be formed. The members of the committee should be nominated by the railway companies and by the St. John Ambulance Association.

Captain W. SALISBURY-SHARPE, R.A.M.C., T.F., said that the result of prize competitions was too often to develop a few teams of highly skilled men rather than a large number of competent ones, the latter being the result to aim at.

Lieutenant-Colonel E. M. WILSON agreed with this remark, but he was of opinion that probably better results would ensue from consultation between those responsible for teaching in the different railways than by asking the authorities concerned to lay down additional rules and regulations.

Colonel HENDLEY considered that it would be best if the railways could consult amongst themselves in the hope that they might arrive at greater uniformity and that the benefits of training might be more widely extended, for he thought with other speakers that improvement was needed, as there was a strong tendency for a few enthusiastic men to acquire skill and for the great body of railway servants to be discouraged and not to keep up their knowledge.

Mr. W. C. RIVERS (Newcastle-on-Tyne) read a paper on Rhinology as an Aid to Diagnosis of Pulmonary Tuberculosis, with Special Reference to the Physically Selected Classes, and the work of the section was concluded with the reading of a paper by Staff-Surgeon J. G. WALLIS, R.N., describing a Detailed Scheme for an Unexpected Landing Party using Material Available on Board Ship.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 20th, 1831.

HIS MAJESTY has been graciously pleased to confer the honour of knighthood on Richard Dobson, Esq., chief surgeon of Greenwich Hospital, for his long and distinguished services, with permission also to wear the orders of St. Wladimir, of Russia, and Danebrog of Denmark, which the late emperor Alexander and the King of Denmark transmitted him through their ambassadors, for eminent professional assistance rendered to their respective subjects whilst in the hospital ship at Chatham. From this circumstance we are inclined to believe, that the recent movement in behalf of naval surgeons, has not been without its effect in a certain influential quarter. Hitherto the favours of royalty have been almost exclusively bestowed on surgeons of the army.[1]

HARVEY'S TREATMENT OF GOUT.—Harvey was a great martyr to the gout, and his method of treating himself was singular. He would sit with his legs bare, even if it were frosty weather, on the leads of Cockaine House, where he lived for some time with his brother Eliab, or put them into a pail of water, till he was almost dead with cold, and then he would betake himself to the stove; and so it was done.

[1] Sir Richard Dobson, M.D., was descended from a younger branch of an old Westmorland family. He was born in 1774 and became a surgeon in the navy in 1795. In 1824 he was appointed chief of the medical staff at Greenwich Hospital, which office he resigned in 1844. He died on Sept. 1st, 1847.

FOREIGN UNIVERSITY INTELLIGENCE.—*Amsterdam:* Dr. A. A. H. Hamer has been recognised as *privat-docent* of Odontology.—*Berne:* Dr. Hermann Matti has been recognised as *privat docent* of Surgery.—*Berlin:* Dr. Richard Freund of Halle has been recognised as *privat-docent* of Ophthalmology and Dr. Alfred Leber as *privat-docent* of Midwifery and Gynæcology.—*Bonn:* Dr. Wilhelm Reis, *privat-docent* of Ophthalmology, has been granted the title of Professor.—*Breslau:* Dr. Georg Wetzel, *privat-docent* of Anatomy, Dr. Bruno Heyman, *privat-docent* of Hygiene, and Dr. Paul Schroeder, *privat-docent* of Psychiatry, have been granted the title of Professor. Dr. Georg Lenz has been recognised as *privat-docent* of Ophthalmology, Dr. Karl Bruck as *privat-docent* of Dermatology, Dr. Robert Scheller as *privat-docent* of Hygiene, and Dr. Forschbach as *privat-docent* of Medicine.—*Budapest:* Dr. P. von Kubinyi has been recognised as *privat-docent* of Midwifery.—*Christiania:* Dr. Ragnar Vogt has been recognised as *privat-docent* of Psychiatry.—*Greifswald:* Dr. Eduard Allard, *privat-docent* of Medicine, has been granted the title of Professor; and Dr. Walter Löhlein has been recognised as *privat-docent* of Ophthalmology.—*Harvard:* Dr. Robert W. Lovett has been appointed Assistant Orthopædic Surgeon.—*Leipsic:* Dr. Paul Sick has been recognised as *privat-docent* of Surgery.—*Lemberg:* Dr. Eugen Piasecki has been recognised as *privat-docent* of School Hygiene, and Dr. Johann Mazurkiewicz as *privat-docent* of Psychiatry.—*Marburg:* Dr. Alfred Lohmann, *privat-docent* of Medicine, has been granted the title of Professor.—*Prague (German University):* Dr. Eduard Pietrikowski has been appointed Extraordinary Professor of Surgery; Dr. Alexander Margulies, *privat-docent* of Psychiatry, and Dr. Karl Walko, *privat-docent* of Medicine, has been granted the title of Extraordinary Professor; Dr. Friedrich Lippich has been recognised as *privat-docent* of Physiological Chemistry. *Rostock:* Dr. Johannes Remtmöller has been recognised as *privat-docent* of Odontology.—*St. Petersburg (Military Medical Academy):* Dr. M. D. Ilin has been appointed Extraordinary Professor of Medical Chemistry.

THE LANCET.

LONDON: SATURDAY, AUGUST 21, 1909.

The Reorganisation of the International Congresses of Medicine.

WE are informed that some effort may be made at the forthcoming International Medical Congress at Budapest to modify and improve the organisation of future congresses, and presumably the attempt at reform will be directed towards international congresses dealing with the other sciences allied to medicine, such as congresses for the study of preventive medicine or hygiene. The International Association of the Medical Press, which meets at Budapest during the two days preceding the International Medical Congress, will discuss a project prepared by the British section of this association which has considerable interest in this connexion. This is a draft of a constitution to govern the selection of the International Committee, which is the supreme authority over these congresses, to extend the powers of this committee, and also to create a smaller executive committee, meeting at least once a year and employing a permanent international secretary. With a definite supervising authority, an active and experienced executive, and a general secretary well versed in the three languages of English, French, and German, well paid, and devoting his time to the work, it is thought that something like order might be evolved out of the present position, which we only hesitate to call chaos lest we should be misunderstood as belittling the great efforts of past general secretaries. The congresses should be so circumscribed as to become manageable. It is universally recognised that congresses consisting of many thousand members are too unwieldy for practical purposes. They also occasion enormous expense, and as their results do not seem to justify their cost there is a possibility at any time of a projected meeting failing to secure a home and an adequate subsidy. Probably it is not only necessary to reduce the number of members but to exercise more supervision over the communications so as to prevent the reading of commonplace and stale papers which lead to vast waste of time. No one has a more practical knowledge of all the defects of congresses than the members of the medical press who have travelled from town to town, attending congress after congress, and have been compelled on each occasion to obtain an accurate idea of what has been done, so as to record what is the net result of such a multiplicity of effort. Therefore it is only natural that a project of reform should emanate from the International Association of the Medical Press.

Judging from the experience which we have acquired at THE LANCET from the chronicle of many congresses, it may be said that the earlier congresses of hygiene were the best organised of such gatherings that have yet taken place, while these congresses have always been better organised than the medical congresses. This is perhaps as would be anticipated, for the proceedings at congresses of hygiene have a more practical and direct bearing on the legislature of different States. A much larger proportion of the questions to be discussed are fit subjects for, and are ultimately translated into, Acts of Parliament. Many subjects brought forward at medical congresses are at first studied as matters of pure science; they become the base of future laws, but the connexion between the points discussed and the legislative clauses that ensue is neither so frequent nor so direct. A congress of hygiene having definite legal measures as its objective tends to be definite in the scope of its recommendations. Again, in regard to organisation of congresses, it is part of the education of many of the attendants at a congress of hygiene to understand what is meant by organisation. As members of public administrative bodies they know the value of the concrete as against the vague proposal; as engineers or as architects they have to deal at first hand with trade problems which force their views upon the notice of governments. The medical men who naturally attend congresses of hygiene are many of them medical officers of health who have acquired administrative experience and capacity. All this is different with the vast majority of the medical men who attend international medical congresses and whose lives are devoted to the treatment of the sick and the study of medical or surgical therapy. It is excusable that attendants at purely medical congresses should be less able to appreciate the benefits of being organised. But the confusion may become serious when a medical man who is appointed to some important post in the organisation of a congress, not because he is a good organiser but because he holds a prominent position in the medical profession, finds that he has not the necessary qualities for his post. Yet how often a very distinguished physician or surgeon is elected to preside over a general meeting or a section when he has no experience whatsoever of conducting a debate, does not know the form of putting resolutions, amendments, and riders, and fails consequently to control an assembly, whose proceedings accordingly drift into disorder, and whose recommendations are lost to the common stock of wisdom of the congress. By all means let there be as many *Présidents d'Honneur* as may prove agreeable to those concerned, but when there is practical work to be done it should be entrusted to those who are accustomed to that particular sort of work.

When a really important gathering takes place at which many persons are present we inquire immediately what was the upshot of it all, what was done, what was decided. These are questions to which the present manner of procedure affords no chance of ready answers. When a congress consists of three to four thousand members, and that we learn to be the estimated size of the Sixteenth International Medical Congress, and when this crowd is divided up into 20 or more sections, it is not possible to get the members together to decide upon any really debatable question. At the earlier congresses of hygiene at Paris in 1879, at Geneva in 1882, and at The Hague in 1884, there were only a few hundred members. In the mornings there were meetings of sections, at which all sorts

of subjects germane to the purposes of the congress were debated. In the afternoons the entire congress assembled; one or two subjects that were thoroughly ripe for discussion were introduced by the best-known authorities present, were intimately explained from different points of view and discussed up and down, and then a vote was taken which, being recorded by the entire congress after an enlightening debate, exercised (and deserved to exercise) great influence on various legislatures. But this did not preclude the presentation to the entire congress of other more purely scientific questions on which no vote was needed or taken. Thus PASTEUR, it may be remembered, reserved for the International Congress of Hygiene that met at Geneva in 1882 his first public communication on the attenuation of the virus of rabies. When his pupil, Dr. ROUX, at Budapest in 1894, had a similar communication to make on the antitoxin for diphtheria this could not be delivered before the whole congress. There were now 3000 members of the congress and no place was available big enough to hold them, therefore Dr. ROUX had to read his paper in the Bacteriological Section, which was overcrowded, while other sections were so deserted that some of them adjourned. With the numerous attendances which spread of scientific education and growth of facilities for travel now bring about it is only possible for all the members of an international congress to meet for the mere formal opening and closing. No debate is possible in such circumstances, and the resolutions that have been carried in the sections are simply confirmed by the entire congress out of politeness and because everyone is on the point of departure and would miss their trains if any discussion was attempted. If there are to be only speeches and lectures it does not matter how many persons attend a congress, but if the recommendations of the congress as a whole are to receive attention the numbers must go down. Article IX. of the regulations of the Sixteenth International Congress of Medicine says that the International Committee will meet on the third day of the Congress to select the town where the ensuing Congress is to be held. This will be a good occasion for discussing how the Seventeenth Congress shall be organised. The committee, say the regulations, will consist of "the presidents and secretaries of the national committees, the president and general secretary of the Sixteenth Congress." They will have a delicate and difficult task before them if they attempt to reform the organisation of the congresses. But this is so much needed that it is to be hoped the committee will not shrink from the task, for the longer the necessary reform is postponed the more embarrassing will the work become.

The Treatment of Sarcoma by Bacterial Toxins.

A MEETING of the Surgical Section of the Royal Society of Medicine was held on July 13th, for the purpose of hearing an address delivered by Dr. W. B. COLEY on the Treatment of Sarcomatous Growths by the Injection of Toxins Prepared from Bacteria.[1] The matter is certainly of sufficient importance to justify our devoting attention to the process he employs and to the consideration of the results which his treatment has produced. Remedies for cancer have never been lacking. They arise from all parts of the world, and their introduction is generally heralded and accompanied by fulsome eulogiums of the wonderful results which they can produce. Yet, whatever may be the cause, the reputation of every one of them is short-lived. Mr. H. T. BUTLIN, at the debate which followed upon the delivery of Dr. COLEY'S address, said that during his professional life he had seen or heard of very many cures for malignant disease, and he had found that they resembled one another very closely in this respect—that they had all passed through an identical series of stages. At the beginning of the career of each cure the treatment was said to remove with certainty all forms of malignant disease. But a few weeks or months at most disposed of this claim, and then the second stage followed, in which the treatment was put forward, not as a universal cancer cure, but as capable of curing certain forms of malignant growth. Later still the third stage came, in which, though the powerlessness of the treatment to cure completely any form of cancer was given up, it was urged at least that it modified the rate of growth of the cancer and rendered it more amenable to other methods of treatment. But the last stage was never long delayed, and that was oblivion. There is much truth in this witty summary of the career of cancer cures; those which have appeared within the memory of the living have conformed to this pattern, and the records of medicine show that past centuries were equally prolific in cures of transient reputation. All this unhappy experience must go far to dishearten those who are most interested in the cure of malignant disease. So many attempts have been proved to be utter failures that the idea naturally arises, "Shall we ever attain to a cure of this affection?" And we are led to regard with suspicion any drug or treatment which is claimed to cure malignant growths. Such a mental attitude is only natural, for our expectation of the future must rest mainly on our knowledge of the past. But this attitude is wrong, for our knowledge of what has been done by medicine should make us hopeful of what medicine can do. We would not for a moment urge that every method of treating cancer which is put forward should be received at the estimation of its introducer, but we would urge that every method the claims of which are supported by any tangible evidence is certainly deserving of a reasonable trial.

The difficulties of examination of the evidence in favour of a cancer cure are great. In the first place, doubt as to the diagnosis is very difficult to overcome. Every growth is not a cancer, though to the unlearned mind it is sufficient for a tumour to be large or painful for it to be regarded as cancerous in nature. But even members of the medical profession may be mistaken in the diagnosis of malignant disease. Time and again it has happened that mistakes have been made on this point, and therefore before we can acknowledge that the growth which has disappeared by any treatment was cancerous in nature we must have more evidence than the mere presence of the symptoms and signs

[1] THE LANCET, July 17th, p. 173.

usually accompanying a malignant growth. The most satisfactory of all forms of evidence is histological examination, but here again those who have had the most experience of the histological examination of pathological tissues will be the first to acknowledge the difficulties that sometimes occur in the diagnosis. Especially is it difficult to distinguish between a small round-celled sarcoma and granulation tissue, though similar difficulties occur also in other forms of malignant growth. Many a time a hard mass in the neighbourhood of the pylorus has been diagnosed as cancerous and has been removed, yet when submitted to histological examination it has not been found possible to say with certainty that the mass was carcinomatous in nature. In other cases a similar mass has been exposed by a laparotomy, and the clinical signs were so definite and the mass so fixed that the surgeon considered the growth to be incapable of removal, and therefore he has closed the abdomen; but the subsequent course of the case to recovery has shown that the diagnosis itself was erroneous. It is thus seen how very difficult it is to establish beyond doubt the malignant nature of many growths, but the most satisfactory proof that a growth is malignant is afforded in the case of a recurrence of a growth, when the primary tumour has been shown unequivocably to be malignant by histological examination.

The basis on which Dr. COLEY has built his theory and practice for the treatment of some forms of malignant disease is probably well known to most of our readers. It has from time to time been recorded that a malignant growth, in some cases carcinomatous, in others sarcomatous, has lasted for a longer or shorter time, and has steadily progressed, so that its course suggested a certain fatal issue before long. Yet an intercurrent attack of erysipelas has been followed by a complete disappearance of the original tumour. Accordingly it has been claimed that the attack of erysipelas caused the growth to disappear. It must be acknowledged that in a large proportion of the cases in which such an occurrence has taken place the diagnosis of malignancy was mainly or entirely clinical and not based upon evidence which would have satisfied the more rigorous criteria of modern medicine. For most of these cases date from more than 30 years ago, when our diagnostic methods were less exact than at the present time. On the other hand, we have to bear in mind that the comparative rarity of erysipelas in hospitals at the present day diminishes greatly the chance of such a disappearance of a malignant growth. Nevertheless, in spite of this objection, we are justified in accepting the records of the clinical facts that malignant growths have been observed occasionally to disappear during an intercurrent attack of erysipelas. This fact impressed Dr. COLEY greatly, and he endeavoured to devise some means by which this sequence of events could be rendered available as a treatment for cancer. His first idea was, of course, to infect cancerous patients with the organism of erysipelas, but in practice several difficulties appeared. In the first place, it is not always easy to give rise to an attack of erysipelas, and in the second it is not possible to limit the virulence of the attack when it has once been started. Dr. COLEY therefore determined to employ the toxins instead of the living streptococcus. It has been shown, both clinically and in the laboratories, that the bacillus prodigiosus has in itself a curative effect upon tumours, and, moreover, that it intensifies the virulence of the toxins of erysipelas. Therefore, Dr. COLEY now employs a mixture of the toxins of these two micro-organisms. If we allow the correctness of the diagnosis of malignancy in the tumours treated, what results can Dr. COLEY show? Up to the present he has employed the treatment in nearly 500 cases, and of these only three died as a result of the treatment, though deaths have been recorded where the method has been employed by others. Of these 500 cases success seems to have followed the treatment in rather more than 50 cases, so that we may say that some 10 per cent. of the cases treated have had a successful result. The experience of Dr. COLEY shows that the failure which has resulted in the hands of many may be due to several causes. In the first place, it is fairly well established that it is only in sarcoma that satisfactory results have been obtained, for these toxins appear to be entirely useless against carcinomata. In the second place, many of the preparations of Coley's fluid which have been placed upon the market have not been made with the care and exactness which are employed in the preparation of the fluid used by Dr. COLEY himself. In the third place, the records of Dr. COLEY'S cases show that much perseverance and many injections are sometimes required to produce any evidence of improvement. Occasionally it has been owing to the wish of the patient himself that the treatment has been carried on until success has been attained. Fourthly, in many cases severe symptoms appear. Rigors, cyanosis, frequent and feeble action of the heart, with a temperature which may reach 105° F., will certainly tend to discourage all but the most enthusiastic believers in the efficacy of the fluid. The reports of some of the cases successfully treated by Dr. COLEY are very striking. In many of them several years have elapsed since the recovery, so that Dr. COLEY is justified in claiming that the result is permanent.

What, then, shall be said as to the value of the treatment? We feel that at present the attitude of the profession in this country should be strictly non-committal. We do not deny the records which have been presented to us. We willingly acknowledge the good faith, the energy, and the perseverance under difficulties which Dr. COLEY has shown in his elaboration of this method of treatment, and we consider that it deserves a thorough and careful trial at the hands of the profession of this country. It is no new method. Some 16 years have elapsed since it was first brought forward by its originator, and during that time he has improved it until in his hands it appears to have reached some degree of exactness; and it is essential, if it is to receive a fair trial here, that the methods employed by Dr. COLEY should be adopted with the utmost exactitude. At the meeting of the Royal Society of Medicine it was urged that the method was unsatisfactory because we did not understand how it worked. This is an argument worthy of all respect from scientific men, but for practical purposes it cannot always be respected. If we are to be debarred from the use of a treatment because its *modus operandi* is unknown, of how many drugs in the pharmacopœia should we be deprived? The use of potassium iodide in tertiary

syphilis and of colchicum in gout is absolutely empirical, yet we are fully justified in employing these. And so it may well be with Dr. COLEY'S toxins. We hope that the use of Coley's fluid will be carefully and thoroughly tested here, and we echo the wish of Mr. BUTLIN that Dr. COLEY could stay in this country for at least a year in order to show us how the method is employed, and how to attain the results which he himself has achieved.

The First Report of the Departmental Committee on Coroners.

THE Blue Book, recently issued, which contains the evidence given before the Departmental Committee appointed to consider the law relating to coroners and coroners' inquests and the practice in coroners' courts, contains much that is of interest to the medical profession. Before very long, presumably, the recommendations of the Committee will be issued, when it may be hoped that the course of politics will permit legislation to follow at no great interval. The law requires amendment, as all are aware who, as coroners, as medical practitioners, or in other capacities, have been brought into contact with cases of death where no medical certificate has been forthcoming, while the cause of death has had to be established in the interest of the public or of surviving relatives. At the intermediate stage which then ensues, and which precedes in some instances an inquest and in others burial without either a medical certificate or a public inquiry, the machinery has often failed to work smoothly, and the Committee has consequently had to concern itself largely with the possible amendment of the procedure at this point. The shortcomings have now been explained to a body competent to make suggestions of a practical character, and one result of the inquiry has been that the coroner's office and the inquest, including the coroner's jury, have received worthy vindication of their ancient dignity and usefulness from witnesses whose words are in every way entitled to carry weight. Their opinion may be summarised by saying that especially in cases where there is a suggestion of murder, manslaughter, or conduct deserving censure, it is of great importance that there should be an inquiry at which evidence on oath can be compelled, although no charge has been formulated against an individual, and at which statements can be admitted which would be excluded if such a person were being tried in accordance with the rigid laws of criminal evidence. The use of such statements, which might be kept back from those conducting an inquiry privately, is, of course, not to prejudice the guilty but to ascertain the truth as nearly as possible, to afford clues, and to suggest directions in which admissible evidence may be sought. With regard to the British jury, it has been spoken of by advocates in terms of turgid laudation as a "palladium" of our liberties, and it has been made, on the other hand, the object of censure and of ridicule not always undeserved. It may be admitted, moreover, that in coroners' courts not situated in such an exceptional area as the City of London the juries are hardly composed of the best educated and most intelligent of the community. Nevertheless, whether it be summoned to assist the coroner or any other judicial officer, the jury remains for the obtaining of what is known as a "finding of fact," the most satisfactory tribunal that we are likely to obtain, in spite of the circumstance that its duties may involve the consideration of scientific testimony. There is, apparently, no desire on the part of lawyers, medical experts, or coroners who have given their evidence before the Departmental Committee to transfer the responsibilities of the men in the "box" to the coroner, either alone or in conjunction with a medical assessor. It is true that Professor H. H. LITTLEJOHN, with a combined experience of the English and Scotch systems, expressed an opinion in favour of the latter, and advocated an inquiry conducted privately by a trained legal official. His evidence was of a valuable character and will no doubt afford suggestions for improvement in matters of detail; but, on the other hand, Mr. A. J. PEPPER may be cited as a witness of weight who maintained his belief in the jury system, and other witnesses, including coroners, whose duty it has been to apply the existing machinery, took a similar view. Making allowance for the tendency which we must all have to trust to methods with which we are familiar, we do not think it likely that in this country the coroner's jury will be superseded by any other tribunal in the near future, although steps may be taken to render the enquiries more satisfactory to all concerned.

The method of summoning juries and the number of jurors desirable for practical purposes are discussed in the report, and other topics ventilated which are of special interest to the medical profession include the viewing of the body by the coroner and the jury. It is a little surprising to find a strongly voiced opinion in favour of retaining the practice under which a jury is compelled to inspect the body. Under present conditions, at all events where apparatus necessary for it exists, this is done without risk in possibly infectious cases and without any exposure of a distressing character. The reasons given for retaining the view, however, included the possibility of a juror making a valuable suggestion from the inspection (for which obviously something more than a glimpse of the uncovered face would be necessary), and also the danger of some deception, such as the substitution of another body, being practised. Mr. G. P. WYATT, a coroner of experience, was also of opinion that the necessity of inspection of the body by the jury afforded the coroner a tangible pretext for insisting on his right to have possession of the body without demur on the part of the relatives. The possibility of the coroner being given a discretionary power to order a view by the jury and of individual jurors being allowed to decline to avail themselves of the opportunity was considered, and this seems to us a fair compromise. Two important questions arose for the Committee out of the post-mortem examination—the first being whether the coroner should be empowered to order this before deciding to hold an inquest; and the second to whom he should intrust any post-mortem examination that he might consider desirable. Mr. R. HENSLOWE WELLINGTON may be mentioned as an advocate of the preliminary post-mortem examination. He put the number of inquests which might be dispensed with if the cause of death were to be thus ascertained at 40 per cent., and as it is admitted that an inquest often

causes distress to the friends of the deceased, as well as public expense, it seems likely that the authority to make the order suggested will form the subject of a recommendation by the Committee. The question of who is to hold the post-mortem examination follows, and the opinions expressed were divided between the employment of an independent pathologist in all cases, and the alternative of his services being made use of at the coroner's discretion. The friction which has arisen in the jurisdiction of a London coroner owing to his practice in this matter will be remembered, and it will be interesting to see what the Committee will recommend. On the one hand, it is clear that the medical man who under the provisions of the Coroner's Act, 1887, now has the right to be ordered to make the post-mortem examination is perfectly competent to do so in a large number of instances, but in some others it would be better to employ a pathologist qualified by special training and practice for the purpose. If, however, the employment of the latter is not rendered obligatory a question necessarily follows as to how the coroner, particularly if he is not himself a medical man, is to exercise the discretion suggested. In this connexion it may be mentioned that several witnesses were asked as to the qualifications desirable for the holding of the coroner's office, and that Mr. HENSLOWE WELLINGTON was of the opinion that in country districts the legal qualification might be preferable to the medical, but that in large urban areas the coroner should be a "medically qualified lawyer with experience." These topics are likely, however, to be reviewed as a whole, the comparison of the English and Scotch systems, with the selection of desirable features from both, affording the most obvious method for obtaining that efficiency which we all desire to see—an efficiency which, be it remembered, must always fall short of perfection and, however generally satisfactory, can scarcely be expected to be beyond criticism.

The principal topics dealt with by the witnesses before the Committee, including those mentioned above, were propounded to them in a series of written questions addressed to them before they gave evidence, and a number of other points arising out of these were discussed. The fees of witnesses suggested dealing with those fees which should be paid but which are now unjustly withheld, when the deceased has died in a hospital and when the medical witness is a member of the staff of the institution. The Committee was reminded in an interesting piece of evidence by Mr. ISAAC BRADLEY, coroner for Birmingham, that this proviso is the survival of a clause to the same effect introduced into the Coroners' Act passed at the instance of Mr. THOMAS WAKLEY, the Founder of THE LANCET, early in the last century. It was then devised as a reservation in the nature of a compromise in order to induce Parliament to sanction the payment of any fees to medical witnesses, and its retention has been a matter of adverse comment ever since. Inseparably connected with the question of fees to medical witnesses properly so called is that of remuneration for medical men from whom coroners seek information when a death is first reported to them. We are not sure whether the Committee had this matter fully enough before it, and whether the evidence of one or two members of the medical profession conversant with the matter from recent personal experience might not be found useful. There are, however, more witnesses to be called, and the revision of the system of inquiry preliminary to holding an inquest or to dispensing with one must necessarily bring the subject under consideration. With regard to the scale on which medical fees should be fixed, as well as on other important subjects, the Committee had evidence from Dr. A. G. BATEMAN in his capacity of general secretary of the Medical Defence Union. His evidence, and that of several other witnesses, including Mr. CLINTON T. DENT, Dr. F. J. WALDO, and Mr. J. BROOKE LITTLE, a barrister, who gave an instructive historical synopsis of the history of the coroner's office, should interest medical men into whose hands the Blue-book containing it may fall.

We have not here gone into the evidence upon two subjects of rather disproportionate importance to which the Home Office called the Committee's attention after its appointment. These are deaths resulting from the administration of anæsthetics and the danger arising from the use of flannelette in articles of clothing. As to the latter, little was said of importance, attention being called to the provision for use of fireguards in the recent Children Act. As to the former, exhaustive and interesting evidence was given by an important series of witnesses, which will probably have as its outcome a recommendation as to the manner in which these deaths should be inquired into. This is, however, a matter which does not affect the general ordering of those duties which a long process of development has assigned to coroners.

Annotations.

"Ne quid nimis."

THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE British Association for the Advancement of Science will this year hold its annual meeting at Winnipeg, in Western Canada, and a considerable number of passengers left British ports by steamer a week ago for the purpose of taking part in the proceedings. On the present occasion the association is making its third visit to Canada. At the first visit, in 1884, the meeting was held in Montreal, Lord Rayleigh being the President, while at the next visit, in 1897, the meeting was held in Toronto, with Sir John Evans as President. The proceedings will commence at Winnipeg on August 25th, Sir Joseph J. Thomson, Cavendish professor of experimental physics in the University of Cambridge, being the President. The work will be conducted in 11 sections, the subjects and sectional presidents of which will be as follows:—Mathematical and physical science (Professor Ernest Rutherford), chemistry (Professor H. E. Armstrong), geology (Mr. H. Smith Woodward), zoology (Mr. A. E. Shipley), geography (Colonel Sir Duncan Johnston), economic science and statistics (Professor S. J. Chapman), engineering (Sir William H. White), anthropology (Professor J. L. Myres), physiology (Professor E. H. Starling), botany (Lieutenant-Colonel D. Prain), with a sub-section on agriculture (Major P. G. Craigie), and educational science (Rev. Dr. H. B. Gray). Medical subjects treated from a clinical or therapeutic point of view are seldom, if ever,

introduced, but numerous questions of great medical interest have been from time to time discussed and it is understood that several papers of this kind will be read at the meeting. It may be almost taken for granted that Sir Joseph Thomson's presidential address will deal either with recondite questions of chemical physics or with the electrical theory of matter.

SYPHILIS BEFORE THE CONQUEST OF PERU.

THE question of the site of the earliest appearance of syphilis in the world has often been debated and will probably never be satisfactorily settled, the unenviable distinction having been variously claimed for Asia, Europe, and America.[1] A good deal has been written to prove that the Spaniards introduced the disease into Central and South America; and, on the other hand, certain authorities have believed themselves justified in claiming that Europe was free from it until it was introduced by the Spaniards on their return from the New World, through whom the Army of Charles VIII. of France, which invaded Naples in 1494–95, was infected, this being the first well recognised epidemic of the disease of which we have clear historical accounts. Though it is now pretty well ascertained that syphilis existed in Europe long previously to the return of Columbus, it is still very possible that his soldiers did bring back a virulent form of the disease. From the writings of the early Spanish missionaries and others it would appear that the disease called huanthi in the Peruvian Indian dialects was no new phenomenon, but had been well known among these peoples long before the conquest, and it is generally agreed amongst the medical men who have studied the question on the spot that this word is practically the native name for syphilis. It was recognised by the early missionaries that the lives of the Indians were exceedingly immoral, and that huanthi was spread in consequence of their licentious practices. It was even alleged that the disease was natural to certain animals, especially the alpaca, and that Indian herdsmen contracted it from them; but according to the most recent authorities it would appear that though the alpaca disease attacks the anus and genital organs and is highly contagious amongst these animals it is not communicable to human beings and is certainly not identical with syphilis. Its existence is, however, looked upon with special disgust by many merchants, so much so that they avoid all traffic in these animals and their skins, even though the trade is a lucrative one. A good deal of controversy has raged round the question of the nature of the terrible epidemic occurring in the neighbourhood of Quito which caused the death of the great Inca Huana Cápac. Cieza de Léon, writing about 1548, says that it was a pestilence of such terrible virulence that more than 200,000 persons perished. He describes it as small-pox, as also does Pedro Pizarro, writing in 1571. The Indian historian, Don Juan de Santa-Cruz, speaks of it as measles, and Pedro Sarmiento Gamboa as "a kind of fever (*enfermedad de calenturas*), which is thought by some to have been small-pox and by others measles." More recent writers have variously suggested malaria, leprosy, typhus, Peruvian verruga, and syphilis as being the true nature of this remarkable epidemic. The reasons adduced for some of these guesses—for they can hardly be much more—are not very convincing. With regard to syphilis, though that disease may not have caused the death of the great Inca, proofs are not wanting that it existed in the New World long before the arrival of the Spaniards. Very recently a young Peruvian medical man, Dr. Julio C. Tello, has published as a graduation thesis an account of a large number of human skulls which he has occupied his vacations in collecting from the tombs in the district of Huarochiri in the province of Yauyos, thus adding to the knowledge of these interesting memorials of an age long antecedent to the conquest obtained by Davila Briceño,[2] McGee,[3] Dr. Albert S. Ashmead[4] of New York, and Dr. Robert L. Nitsche.[5] Many of the skulls found by Dr. Tello presented exostoses, sometimes single sometimes multiple, of the frontal or parietal bones. In other instances there were perforations or loss of substance which may in some cases have been due to rude attempts at trephining. Dr. Tello thinks that though doubtless blows and wounds of the head were frequent enough amongst the old Peruvians many of the lesions presented by the skulls in his collection were due to a combined effect of the specific disease and the traumatism. This immense collection of pre-historic remains, which has been given to the University Museum in Lima, has already been an object of great interest, pathological and antiquarian, and the energetic young investigator has found no lack of professors and other medical men who are in agreement with him as to the probable syphilitic nature of many of the pathological conditions presented in the specimens.

[1] See reference to Dr. Kronfeld's paper in THE LANCET of July 31st, 1909, p. 333.

[2] La Provincia de Yauyos.

[3] Primitive Trephining in Peru, Sixteenth Annual Report of the Bureau of American Ethnology.

[4] Ashmead: Pre-Columbian Leprosy, Chicago, 1895, from the Journal of the American Medical Association. The *huacos* (Mummy-Grave) Potteries of Old Peru, a Study in Pre-Columbian Pathology, the Medical Fortnightly, St. Louis, August, 1906.

[5] Lepra Precolumbiana (?), Revista del Museo de la Plata, vols. ix. and xi.

"FOR PROFESSIONAL SERVICES RENDERED."

AN anonymous correspondent, recently writing to the *Stage*, called the attention of "The" Profession to which he belongs to a grievance which he alleges is felt by many medical men towards certain of his brethren. He premises that "a large number of the foremost members of the medical profession as well as many general practitioners, have been kind enough to give their time and services to the members of the Actors' Association," and discusses the obligation which rests upon the beneficiaries of this concession to render something in return. He goes so far as to state that "the original undertaking was that these honorary physicians and surgeons should receive, as a sort of *quid pro quo*, in no way commensurate with their services, the courtesy of free admission to the theatres in London and the provinces." His point is that this unwritten contract has not been fulfilled by his profession, and that "complaints are constantly being made by doctors in consequence." He asks that a definite policy may be made clear as to whether the medical men in question are to be accorded this honorarium in future or not, and in the latter case he prophesies that "it is natural and reasonable to anticipate the eventual collapse of a hitherto inestimable benefit available to members of the Actors' Association." The communication, coming apparently from an actor, is worth consideration, and in discussing it we do not wish to narrow the principle involved to the application of any particular case, but rather to inquire whether medical men who voluntarily give their services with their eyes fully open to the gratuitous nature of the arrangement have a legitimate grievance if they get no more substantial return than the blessing which rests on the giver. We are inclined to think that they have no grievance, and for this reason. If they agree to treat people without fee, the inference is that those particular people are for some cause unable to pay a fee at all commensurate with the nature of the services rendered to persons of their own station in life. Now every busy medical practitioner comes across a large number of cases to which this description unfortunately applies, notably amongst the professional and "retired" classes, whose antecedents and appearances prevent them from applying

for hospital relief, even if their pride would allow of it, but who can only just make both ends meet in the ordinary course, or perhaps cannot even do that, and who are absolutely unable to bear the financial strain of a time of sickness without the generous assistance which they often receive from their medical attendants. The reason of this generosity is, of course, that the traditions of medicine are those not of a trade but of a liberal and humane profession, and although we know full well that there are a number of comparatively well-to-do people constantly seeking the services of medical men who are ready to exploit this professional tradition in the shabbiest manner, yet we should be very sorry to think that their selfish greed should ever suck the well-springs of medical compassion so dry that they should cease to flow for those in true need of them. But if it is sometimes the privilege of the medical man to give freely of his best, it is no less his duty to withhold gratuitous attendance from those who are properly able to pay for it, and the only general rule which he can follow safely is to decide every case on its own merits. We will put aside as a special case the mutual gratuitous attendance that is customary amongst medical men and is generally extended to their immediate families, only remarking that the extension in question is sometimes stretched beyond its fair limits, and we will not discuss at present the enormous amount of free medical work that is done every day amongst the working-classes and the poor, for this falls under a somewhat different consideration from the case of the professional classes. Amongst these there are two which have been favoured with so much gratuitous medical attendance in the past that we understand that not a few of their members have come to regard the free services of a medical man almost as one of the prerogatives of their calling, or who would at least be unpleasantly surprised to receive a normal account from their medical attendant. In thus alluding to the Church and the Stage we do not wish it for a moment thought that we deplore the custom which has led our own profession to offer generous treatment to the poorer actors and actresses, and especially to ministers of religion. The miserable stipend of the hard-worked curate with a family is only more notorious than the financial disabilities of the actor who has not "arrived," and the very genuine gratitude of many a poor clergyman or player to his medical benefactor—who has himself, perhaps, found the struggle for existence none too easy—must often have gone far to reward the compassionate practitioner for doing what he could for a fellow creature in distress. It may well happen that if the grateful patient attains to an unexpected success he will make it his business to requite the man who helped him in some tangible manner; but the essence of an act of fine charity seems to us to be tainted if it be bestowed by the medical man with the proviso—implicit or explicit—that he should receive payment in kind. If he wants to make a charge let him make one, or refuse to treat the case, as he may quite properly do, but by all means let him avoid the impossible attitude of doing a man a good turn "for nothing," and then feeling aggrieved because he has got nothing for doing it. To return to our original instance. Whether the definite arrangement exists between the Actors' Association and its honorary medical officers which the *Stage's* correspondent describes, we have considerable doubts. If it does we can only wonder at the influence which that association commands in being able to pledge the credit of the proprietors and managers of the theatres throughout the country to supply free seats to medical men who ask for them. We certainly are not aware that medical men are in the habit of applying for free seats. At the same time we are quite sure that the more prosperous members of the dramatic profession who can afford to pay their lawyers and their tradesmen to the full would not seek to evade the payment of their medical attendants, who would be very ill-advised not to send in their professional accounts to any patient who can obviously afford to pay it, whatever be his calling. Whilst free medical work may be sometimes properly done for hardworking or retired professional men with an income disproportionate to their legitimate needs—and especially to actors or clergymen, who are conspicuously ready to give their services to help other people—no return should be looked for in consideration of what is simply an act of mercy. We can see no reason why a rector with a comfortable living, and perhaps private means as well, or a prominent actor earning his £10 or £15 a week should not pay for medical attendance exactly the same fees as would be expected from a soldier, an architect, or a lawyer enjoying the same income and subject to the same kind of expenses.

THE DOSAGE OF DRUGS IN RELATION TO BODY WEIGHT AND SURFACE.

IN the *Bio-chemical Journal* for July Professor Benjamin Moore, professor of bio-chemistry in the University of Liverpool, argues on the fallacy of stating the dose of a drug in relation to the body weight of the subject of treatment. He considers that, quite apart from idiosyncrasies and alteration in the species of animal, this method of stating dosage is based on a wrong principle. Many drugs, even in the same species of animal, act upon two individuals of different size proportionately to their body surfaces, or, in other words, proportionately to the two-thirds powers of their weights. For example, the dose of many drugs that can be given to infants to produce a given therapeutic result is often many times larger than the proportionate dose for an adult on the basis of the body weight. Apart from a few cases of idiosyncrasy, as with morphine, it is usually found that the balance is in the opposite direction. Thus, an adult weighing 150 pounds cannot be given 15 times the dose for an infant weighing 10 pounds, but more nearly a dose of six times as much, which is the two-thirds power of the ratio in the two weights. Professor Moore further claims that there is a limit to our power of applying therapeutic agents against disease in larger animals, and that a cure may be effected with ease in smaller animals, but not in large animals or in man, simply because of their greater size, and not because of any peculiar sensitiveness to the drug. In support of these contentions he cites the case of atoxyl, a drug which easily cures trypanosomiasis in small animals, such as the mouse. The difficulty of effecting a cure, however, increases with rabbits, while with men and the larger animals the difficulty is enormously greater, as the trypanosomes can scarcely be driven out from the circulation by such sub-lethal doses as it is possible to give. Bearing these facts in mind, Professor Moore sought to find a physico-chemical basis which might afford an explanation. A study of the action of arsenic, antimony, atoxyl, and the soluble salts of bismuth, iron, and other metals led him to the following conclusions: 1. In the case of substances which act by stimulation or inflammation of surfaces, such as the intestinal tract, the maximum dose is proportional not to the body weight but to the two-thirds power of the body weight. 2. This leads to important differences in dosage in man and large animals. 3. It also shows that the possibilities of treatment are diminished by natural means in man and large animals, which have naturally less intestinal and other surfaces per unit of weight. Accordingly they can only take up proportionately less drug, and if any remedial substance is manufactured by the surface cells they can only manufacture relatively less than the smaller animal. 4. In general terms

it may be said that the uptake and output of poison or infection are relatively more rapid in the child and in small animals, which are on this account more susceptible to the onset of infection, and at the same time have more power of recuperation when infected. Professor Moore suggests that for the great majority of drugs the method of stating dosage as so much per kilogramme should be abandoned. It is preferable to determine the dose for an animal of an observed weight by taking the two-thirds powers of the two weights and calculating the dose for an animal weighing one kilogramme, stating the dose as for a one kilogramme animal and not as per kilogramme of body weight. From this dose the dose for a man of average weight, say 64 kilogrammes, can readily be deduced. It is the dose for the one kilogramme animal, not multiplied by 64, but by the two-thirds power of 64, which is 16. Hence it is obvious that the usual method of calculating the dose gives a result four times too high. This new formula is interesting and perhaps accounts for the fact that in human therapeutics the dose for light and heavy persons does not rise and fall in proportion to their weight. The heavier person requires a slightly higher dose, but not proportionately to his greater weight.

THE SIXTEENTH INTERNATIONAL MEDICAL CONGRESS: THE OFFICIAL USE OF THE ITALIAN LANGUAGE.

THE general secretary of the approaching International Medical Congress, which will open at Budapest on August 29th, informs us that 3000 members have already expressed their intention of attending and that a further 1000 may be expected. Up to August 11th the list of medical men from different countries who have subscribed to the membership is made up as follows: Argentine Republic, 35; Austria, 188; Belgium, 43; Bosnia-Herzegovina, 7; Brazil, 22; Bulgaria, 17; Chili, 4; Cuba, 6; Denmark, 8; Egypt, 21; France, 257; Germany, 218; Great Britain and colonies, 92; Greece, 16; Holland, 31; Hungary, 855; Italy, 145; Japan, 24; Mexico, 3; Monaco, 1; Norway 2; Portugal, 28; Roumania, 10; Russia, 172; Servia, 4; Spain, 64; Sweden, 4; Switzerland, 23; Turkey, 17; United States, 164; and Uruguay, 2. 656 ladies intend to accompany these congressists. The programme of fêtes and receptions will appear in the first number of the official journal of the Congress, which will be distributed to members of the assembly on August 28th. Besides the "soirée of welcome" the programme will include a reception at the Royal Hungarian Court and evening entertainments given by the President of the Congress, the municipality of Budapest, the Presidents of the 21 sections, and the Ladies' Committee. It may be well to clear up some misconception concerning one of the official languages to be used at the Congress. For some time past the Italian journals, professional and lay, have been under the impression that their country's language would be excluded from the proceedings of the Congress and that Italy's representatives would be able to intervene in the discussions only in German, English, or French. How that impression can have been formed it is hard to say, but that it undoubtedly existed has been but too evident from the spirit—not quite "fraternal!"—in which Italy has been discounting in advance the importance of the Congress and the value of its contributions to the cause of medicine, scientific and clinical. Something of the resentment with which Italians have been contemplating the attitude of Austria—not Hungary—towards her academic claims at Innsbruck and Trieste, nay, in Vicuna itself, may have coloured the comments above referred to, and at one time it appeared quite possible that not only the Italian language but the Italian delegates would be missed from the Congress. This regrettable anticipation has, we are happy to say, been shown to be groundless by the correspondence now made public between Professor Temesvary, representing the University of Budapest, and Professor Luigi Maria Bossi, representing that of Genoa. "The Italian language," writes the former gentleman, "will be equally recognised at the Congress with our own. The Italian 'reports' are already printed and distributed in the Italian language. We Hungarians love and esteem our Italian colleagues because on the battlefield of science our cause, our ideals, and our enemies are the same. We cordially await the arrival of our Italian brethren." It should be remembered that Article 16 of the constitution of the Sixteenth International Medical Congress stipulates that "the Italian language is recognised in the discussions of the Congress as on absolutely the same footing with the French, the English, and the German." The organising committee of the next Congress has thus taken full account of the claims of Italy—claims, it may be added, which have been ignored in recent congresses. We are informed that His Excellency Signor Rava, Minister of Public Instruction in the Italian Government, has received by telegraph from Budapest a confirmation of the admission of his country's language to equal rights with its three sisters at the coming Congress. So "all's well that ends well."

PLAYING WITH SAND.

THE amusement which children find in making "castles" with sand on the seashore, in digging trenches and pits, and tracing designs on the alluring surface is innocent enough and serves to keep the youngsters occupied and to give them exercise in the healthy environment of sun and fresh sea air. A somewhat similar end is gained by providing sand heaps inland, in public parks, and in various open spaces, and as a matter of fact such heaps of sand are a source of joy to many children. It would be a pity to kill such joy, for the lot of the poor city child is, as a rule, a poor one, but we would suggest that some attention be paid to a certain insanitary aspect of these inland sand games. It must be remembered that the sand of the seashore is continuously washed by an advancing and receding sea, and so is made clean every tide. But that is not the case with the sand heap at home, which, after the play of a few weeks, becomes very dusty, and this dust during the play is scattered in all directions, and no doubt a good deal of it is swallowed and some inhaled. Infection may follow, for no one could be bold enough to say that the sand after days of use would be free from infective material. It would be a great gain if the sand could always be kept damp and free from dust, but it would be better still if damping could be associated with the application of an inoffensive antiseptic.

THE USE OF CASIMIROA EDULIS AS A HYPNOTIC.

IN *L'Union Pharmaceutique* for July M. Albert Robin and M. A. Coyon call attention to the value of the fruits of *Casimiroa edulis* as a hypnotic. It is a Mexican plant, of the natural order Rutaceæ, and has been employed with success in South America for many years as an analgesic, sedative, and hypnotic. M. Robin and his colleague obtained a supply of the drug, and after a trial extending over two years they speak in terms of praise of its hypnotic and antispasmodic action. They used it in the form of a fluid extract, in doses of one to two teaspoonfuls, and observed that its administration was followed in two or three hours by a calm sleep, free from nightmare, and resembling natural sleep. The effect lasted about five or six hours and the patients on awaking did not suffer from headache,

fatigue, or nausea. On account of its harmlessness in these doses they recommend the use of the drug in renal and nervous affections, particularly in old people. It is not advisable to give higher doses than two teaspoonfuls, as the drug produces toxic effects in large doses. According to some Mexican writers it exerts a paralysing effect on the respiration, although M. Robin and M. Coyon were unable to confirm this statement. They noticed, however, a paralysing action on the cardiac muscle, which would contraindicate its use in cases where the myocardium is injured. In the *Press Médicale* of June 30th M. Chevalier suggests that casimiroa has a selective action on the brain, rapidly causing a depression of the intellectual and sensory functions, and therefore deadening the sensation of pain. Large doses produce almost complete anæsthesia, which persists while the grave symptoms of intoxication remain. The drug lowers the temperature, arrests the respiratory movements, and diminishes the number and the energy of the cardiac movements. It also lessens the blood tension and produces marked peripheral vaso-dilatation.

DANGEROUS HAIR-WASHES.

No one who read Dr. Augustus D. Waller's communication to THE LANCET of August 7th, p. 369, in which he demonstrated the very toxic nature of carbon tetrachloride, can doubt that such a readily vaporised and poisonous substance ought not to be employed in any toilet operation. Dr. Waller examined the contents of a hair-wash consisting largely of this substance, though mixed with carbon bisulphide, another poisonous gas, by means of unimpeachable physiological tests such as he has proved of great service in the estimation of the relative toxicity of anæsthetic substances. Dr. V. H. Veley amplified these results by a chemical analysis, and the verdict against the hair-wash was final. If further proof be required it is afforded by a letter from Dr. J. E. Sandilands, which we print on another page. The question asked last week by Sir William Collins of the Home Secretary in the House of Commons, and recorded by our Parliamentary reporter, was the natural sequel of these investigations. Mr. Gladstone's reply to a catechism concerning the recent death of a lady from the effects of the hair-wash, the danger of that substance, and Mr. Gladstone's intentions as to stopping its sale, was written as follows:—

> My attention has been called to the use of tetrachloride of carbon as a hair-wash, to the very great danger involved, and to the death referred to by my honourable friend. I am informed by the Privy Council that tetrachloride of carbon is not a poison within the meaning of the Pharmacy Acts, and there are, therefore, no restrictions as to its sale. As regards the steps to be taken in the matter, I can only say that the Director of Public Prosecutions has the question of a prosecution now under his consideration.

We presume that Mr. Gladstone was using his best endeavours in the public safety and can only regret that he is not empowered to do more to enforce it, for if there ever was a case for the issue of an administrative order we should have thought this to be one. There is something sadly lacking in the machinery of Government if, when it has been found that a powerful poison is being commercially used in a manner dangerous to human life, the Government, though well aware of its nature, has no power to stop its sale because it is not a poison "within the meaning of" an Act. It is conceivable that an extension of this principle to other unscheduled poisonous substances might lead to even worse disaster. In the meantime we are informed that the use of the poisonous hair-wash has not been discontinued, and even though the Public Prosecutor intervenes in any particular case, the resulting verdict will apply to that case alone. In the meantime we would point out that under Section 2 of the Poisons and Pharmacy Act of 1868 which was not repealed by the Amending Act of last year, the Privy Council has power to declare carbon tetrachloride to be a poison "within the meaning of the Act," on the recommendation of the Council of the Pharmaceutical Society of Great Britain. We trust such a recommendation will be forthcoming.

MENINGITIS DUE TO THE TYPHOID BACILLUS IN ENTERIC FEVER.

AT a meeting of the Société Médicale des Hôpitaux of Paris on July 16th M. Claret and M. Lyon-Caen reported a case of enteric fever with the rare complication of meningitis due to the typhoid bacillus. A woman, aged 23 years, was admitted into hospital with the general and abdominal symptoms of enteric fever on April 20th. She had suffered from headache and fever for 10 days and was very prostrate. She was found to have a furred tongue, dry at the tip and edges, gurgling in the right iliac region, palpable spleen, bronchitis, and constipation. The temperature ranged from 103·3° F. in the morning to 104° in the evening. Rose spots subsequently appeared and the serum reaction was positive in a dilution of 1 in 100. On May 1st the patient complained of violent headache, and there was ptosis of the left upper lid. On the 3rd the signs of meningitis were complete—rigidity of the neck, Kernig's sign, inequality of the pupils, an irregular pulse of 110, and vomiting. Lumbar puncture showed no increased intra-meningeal tension and yielded 15 cubic centimetres of clear albuminous fluid. The fluid was centrifugalised and the deposit showed 60 per cent. of polynuclears, 25 per cent. of mononuclears (lymphocytes and large mononuclears), and 15 per cent. of red corpuscles. No bacilli were seen. On May 4th the rigidity of the neck was a little less, lumbar puncture was again performed, and the typhoid bacillus was cultivated from the deposit in a state of purity. The patient was treated with cold baths, and except for an intestinal hæmorrhage two days later her condition remained the same until May 8th, when she was weaker and had violent nocturnal delirium and incontinence of urine. On this day lumbar puncture yielded clear fluid containing lymphocytes and some red corpuscles; the typhoid bacillus could not be cultivated from the fluid, which agglutinated a young culture of the typhoid bacillus in a dilution of 1 in 20, while the blood serum agglutinated it in a dilution of 1 in 100. Recovery gradually took place. M. Claret and M. Lyon-Caen were able to find only 12 recorded cases in which during life the typhoid bacillus was found in the cerebro-spinal fluid by direct examination (four cases) or cultivated from it (eight cases) in meningitis in enteric fever. In only two cases was the fluid described as purulent; in one it was described as opalescent, in three as slightly hæmorrhagic, and in seven (including the above case) as clear and limpid. Only one writer, Nieter, investigated the agglutinative power of the cerebro-spinal fluid. The researches of Concetti, Widal, and Sicard show that in ordinary enteric fever this power is almost always absent, however intense be that of the blood serum. In the above case, as has been shown, it was feeble. It is interesting to compare this weak agglutinating power of the cerebro-spinal fluid with its bactericidal power, which, according to Concetti, is constant. Another interesting point is the duration of the infection of the cerebro-spinal fluid. In two cases the bacillus was found after two punctures made at an interval of eight days, but was absent when a third was made eight days later. In another case the first puncture, made when prostration was the only sign of meningitis, yielded clear and sterile fluid; a fortnight later the fluid was purulent and contained the bacillus. In the above case the second puncture, made four days after the first (which showed a polynuclear reaction and the

bacillus) yielded sterile fluid showing a predominant lymphocytosis. Comparison of the result of cultures made from the blood at the same time as cultures from the cerebro-spinal fluid would be of interest. But only one case is recorded—by Jemma—in which the culture made from the blood was negative, while that from the cerebro-spinal fluid was positive. From the clinical standpoint three principal forms of meningitis could be distinguished in the 13 cases. In the first group the meningitis usually supervened from the fifteenth to the twentieth day, more rarely during convalescence. The course of the fever was a little modified; its classical signs, especially the rose spots, were a little late in appearing, and constipation was usual and gave place to diarrhœa only towards the end, and finally the serum reaction was delayed. This form occurred in nine cases, of which four were fatal. In the second group (two cases) symptoms of meningitis suddenly occurred without anything to suggest enteric fever, and the diagnosis was made only by culture of the cerebro-spinal fluid obtained by lumbar puncture, which was confirmed by the appearance of signs of typhoid fever about the tenth day. Both patients recovered. In a form still more difficult of diagnosis (two cases) the course resembled that of cerebro-spinal meningitis and no signs of enteric fever appeared. The diagnosis could be made only by culture from the cerebro-spinal fluid. The meningitis constituted the sole reaction of the organism to the bacillus. One of these cases was fatal.

THE ITALIAN OFFICIAL REPORT ON MALARIA.

THE highest tribunal of hygiene in Italy—the "Consiglio Superiore della Sanità"—has just been considering the report drawn up by Professor Badaloni of Naples in "La Lotta contro Malaria," and, on the motion of Dr. Santoliquido, Director-General of Public Health, has ordered it to be made *publici juris*. The report, based on inquiries extending over the period when State intervention against the malady was initiated to the present year—from 1902 to 1909—gives signal proof of the efficacy of the measures adopted, with exceptions to be noted presently. First in importance in diminishing the mortality from the disease must be placed the diffusion, at a moderate price, of good preparations of quinine, and the supply of these gratuitously when beyond the purchasing power of the individual. This gratifying diminution was obtained in regions to which the "bonifiche idrauliche e telluriche" (reclamation of the soil by hydraulic and agricultural methods) had not been applied, a fact, however, which by no means excludes the inference that the result would have been still more gratifying in regions where the methods indicated had been put in practice. The tenure of the report makes it evident that "hydraulic and telluric bonification" must henceforth go hand-in-hand with the cure till, *viribus unitis*, the poison is stamped out altogether. No real influence, proceeds the report, in the diminution of mortality from malaria can be attributed to the use of the "protezione metallica" (wire gauze). Just as little can be credited to the destruction of "zanzare" (mosquitoes). This finding will certainly be regarded as retrogressive, but it is of interest in view of a recent article in THE LANCET,[1] entitled "Does Malaria ever Occur Epidemically Without the Agency of Anophelines?"—a question which, it is well known, many Italian experts are still prepared to answer in the affirmative. Another finding, vindicated at length in the report, is the doubtful efficacy of the "profilassi chinica" (the prophylactic administration of quinine). The anti-malaria cure must be practised either in the "epidemic period" or (if attempted prophylactically) in the "inter-epidemic period" and ought to aim at the "completo bonificamento umano" (at the complete physical rehabilitation of the individual). A final finding makes it "indubbio" (certain) that the influence of the preparations of quinine associated with the use of the same medicament as an aid to the "bonificamento umano" is the practice to be pursued in combating the disease when present. The special documents, in the form of reports by experts on the malaria-haunted regions of Italy, as to the efficacy or inefficacy of the measures above indicated, will be read with interest as illustrating and fortifying the findings of Dr. Badaloni, whose "Relazione" is countersigned by all his colleagues on the commission, to wit, Baccelli, Golgi, De Giaxa, Korner, and Ferrero di Cavallerleone—names in themselves a guarantee of the competence and the impartiality with which the inquiries have been conducted and the conclusions formulated.

[1] THE LANCET, July 24th, 1909, pp. 237.

THE USE OF FORMALDEHYDE FOR PRESERVING MEAT.

THE attention of the Local Government Board has been drawn to the increasing use of preparations of formaldehyde by dealers in perishable foods, the gas being employed in meat safes or as a fumigating agent in the holds of ships in which chilled meat is brought to this country from South America and elsewhere. In a recent report to the Board by Dr. G. S. Buchanan and Dr. S. B. Schryver it is presumed very logically that when formalin or its preparations are offered to, or used by, dealers in perishable foods the intention is to employ the solution as a disinfectant or deodorant so, in fact, as to conceal incipient decomposition and to hide any smell of staleness or putrefaction. The trade appear to regard formaldehyde as a substance which "arrests decay," which is "non-poisonous and non-acid," and which therefore is "of the greatest importance to poulterers and all dealers in perishable articles of food." It appears, further, that special safes are recommended for the treatment of provisions the keeping powers of which may thus be increased in hot weather. Since formaldehyde is a deodorant as well as a disinfectant its use is no doubt recommended also to remove taint. According to the report referred to, the food-stuffs to be treated are placed on shelves or hung on hooks in a safe into which a current of formaldehyde gas is discharged from an apparatus attached near the floor. Pastilles of paraformaldehyde are used in this apparatus. The heat of a lamp serves to decompose the pastille into formaldehyde gas. The foodstuffs are left in contact with the vapour in the closed safe for 20 minutes or so and the excess of formaldehyde is then removed by passing a current of air through. For the treatment of milk a sieve is employed which is placed in the roof of the apparatus. The milk passing through the sieve is divided into drops which come into intimate contact with the formaldehyde gas. There can be little doubt that this apparatus is likely to become popular, especially in hot weather, with the proprietors of cafés, restaurants, and similar places. The question remains as to whether the adoption of this method is likely to be fraught with menace to the health of the public. There are substantial reasons, the representatives of the Local Government Board think, for objecting to the presence of formaldehyde in foodstuffs, for it has been definitely stated that it may retard digestion even when present in the food in comparatively large dilution, while it is well known that it readily combines with the protein constituents of foods, forming a compound which is less digestible than the original substance. These objectionable properties were recognised by the Departmental Committee on Preservatives

and Colouring Matters in Food in 1901, which recommended that the use of formaldehyde or its preparations in foods and drinks be prohibited absolutely. It has been assumed, however, that the penetration of the aldehyde into foods by simple fumigation in a ship's hold or in a domestic safe is negligible, and that no more than a harmless, or even a desirable, surface disinfection is accomplished. From the results of an experimental inquiry made by Dr. Schryver, however, it seems pretty clearly demonstrated that it was possible to recover formaldehyde not only from various parts of a forequarter of beef taken from the hold of a vessel which had been treated with formaldehyde gas, but from parts below the surface, especially where the muscular tissue was not covered by connective tissue or fat. Portions of the beef were also tested after ordinary cooking, when it was found that boiling and roasting appeared to reduce or even to remove the formaldehyde, but grilling appeared merely to make the formaldehyde retreat further into the substance of the meat. As Dr. Buchanan points out, the results have a special significance as regards meat which is treated in a formaldehyde safe, for they indicate that articles such as minced meat, fish, kidneys, and other foods which expose a large surface in proportion to their weight cannot be subjected to this form of formaldehyde fumigation without absorbing relatively large quantities of this disinfectant. It is evident from Dr. Schryver's results that special methods are required if the addition of formaldehyde to meat is to be detected with certainty—methods, in fact, which must be applicable not only to the estimation of the free aldehyde but also of the polymerised product and of the aldehyde which has entered into combination with the food constituents. This fact probably accounts for the statement by a firm supplying formalin safes that no disinfectant can be discovered in meat which has been treated by the process. It seems logical to conclude also that formaldehyde is ineffective as a preservative unless present in a quantity in excess of that which possibly may be decomposed by tissue.

IN the column dealing with the Services we publish the outline of a scheme submitted by the Army Council to the various Territorial county associations in England and Wales concerning the formation in connexion with each association of voluntary aid detachments for the treatment and transport of the wounded in the event of an invasion of the country. The scheme has been elaborated with the coöperation of the Council of the British Red Cross Society, the members of which are allotted an important share in the proposed organisation. The scheme is noteworthy by the fact that it provides for the permanent establishment of detachments of medical and other women trained in Red Cross work in a position which will give them a definite function in the Territorial Army.

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MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

Some Suggestions as to the Care of the Car in Hot Weather.

THE recent and late arrival of summer, unattended by fanning breezes, makes roadside stops the reverse of desirable, and as with the present temperature the wax insulation and filling-in of coils is liable to melt, possible short circuits in engines with coil ignition can be avoided by protecting the coil boxes with asbestos sheeting. Another advantage at this time, when even the effort of pulling the starting handle round to start the engine is exhausting, is to have trembler coil ignition, as with this form the motor will frequently start on the switch. Magneto-fired motors can now be started by merely pressing a button. This device is put on the market by the Aston Motor Accessories Company, Limited, of Birmingham; it consists of an accumulator the current from which is made to pass through the magneto-armature in the correct direction, so that it does not hurt the magnets, but rather strengthens them, and, of course, it causes a spark in the cylinders, so that pressing the button starts the engine. This invention is very simple and can be fitted to any existing magneto. Other points worthy of consideration are the lubricators, the carburettor, and the tyres. With all forms of lubrication it is important to bear in mind that in hot weather the oil is thinner and therefore drips more readily; so to obviate smoky exhaust, and possible sooty plugs, it is as well to regulate the drips that they may not be too generous in the quantity of oil they deliver to the engine. Petrol, too, will vaporize more quickly, so if possible the air inlet should be opened more fully, and if this is not practicable a Rotherham lubricator can be screwed into the side of the air intake-pipe, which can be tapped to receive it; if the lubricator be then opened more air will thus enter. Another device is to drill a hole covered with gauze in the pipe, and if this be done a ring can be fitted to obliterate the aperature on the return of cooler weather. With the heat and dust it is possible that foreign matter may enter and either block the gauze over the petrol inlet at the float chamber or, if a strainer is not fitted, the jet itself may become choked. A halt to remove and clear the jet is not inviting and it is well to obviate it by fitting a gauze strainer where the petrol pipe enters the float chamber. If such a foreign-body filter be employed prior to leaving home it is as well to make sure that the gauze is not rendered impervious to petrol by dust. Personally, I am an advocate for the pumping hard of tyres, a fully inflated inner tube has, I am sure, a longer life; still air expands more in the sun than in the cool garage, and this should be borne in mind when seeing to the tyre pressures before starting out. A burst cover means, even with a Stepney, some minutes' delay, and with the thermometer at 84° F. in the shade putting on that useful and excellent invention does not conduce to a proper appearance for the paying of professional calls. A pressure of from 75 to 80 pounds will be ample for the average-sized driving wheel tyres and less for the front wheels.

Hints on Driving a Motor-car.

Most purchasers arrange, when buying a car, that a professional should accompany them when they take delivery, and anyway give them a few hours' instruction in the management and driving. They thus learn where the petrol tank is, the importance of using a strainer when replenishing so as to prevent the entrance of any foreign body, then to inspect that the water-tank is full and that the circulation is clear, the lubricating reservoir full of suitable oil, the grease cups filled and screwed on tightly, and that the crank case, gear box, and differential chamber contain the requisite lubricant. Retarding the spark and observing that the gear-lever is in the neutral notch, the engine is started, and mounting, the driver's seat is taken, the ignition slightly advanced, the clutch depressed, the throttle opened, and the gear lever advanced into the first speed, and, taking care that the brake is off, the clutch is gently let in, and then away should glide the car. I have heard what I looked like myself some ten years ago when first I essayed to command an automobile, and I have seen and helped many other beginners since. The grave face shows that the importance of the occasion is realised; a wide berth is given to the curb and passing traffic,

and with scrupulous care the amateur keeps to his correct side of the road. Joy and elation are experienced when the "Thing" goes; it is taken out for a few miles, turned round where the road is wide and no one is about, and then driven home. Probably after a short trip on the first speed the clutch will be depressed and the second gear brought into mesh, and again letting the clutch in gently and keeping an eye on the road the rate of progression is increased. Then stopping by declutching and putting on the brakes should be practised, and the power of this means will be found out and should give confidence to the driver, though this should not be abused, as the frequent use of the brakes is bad alike for tyres and machinery. Then the car may be taken to a hill, letting the sprag, if there is one, down, and when the engine begins to slacken, declutching and dropping into a lower gear. Changing down as well as into a higher gear is a mere knack; all that is needed is that the teeth of the wheels which are to be brought into mesh should be in such a position that the teeth of one wheel are just opposite the spaces in the pinion into which they are to slide, as otherwise grinding, and maybe even a broken tooth, may result. A careful driver, after declutching gently, moves the speed lever, and can tell by the feel when the spaces and teeth coincide and then will engage them. It is important for the would-be chauffeur to learn to do this, and, as I have already said, it is merely a knack, which with a little practice and patience can soon be acquired. It is as well to first try on the level, for if the gears are missed on a hill, if the sprag jumps the car may run backwards; still, even then an accident should not result if the brakes are put on quickly, and if they have been kept adjusted and act. Having learnt how to drive forward, and how to stop suddenly in cases of emergency and gently for ordinary pull-ups, reversing and driving backwards should be attempted. It has to be remembered that the car must be brought to rest and, of course, the clutch withdrawn before the gear lever is drawn into the reverse, and then, looking backwards, reversing may be practised. I believe that it is best to learn driving on one's own car, and, of course, those who feel nervous can usually arrange with the makers of whatever car they select that an instructor should remain with them for some days, or any way until they feel confident. Those who desire instruction prior to purchasing will find that most dealers are now prepared to give lessons. In London driving lessons are given by capable instructors to members and servants of members by the Royal Automobile Club. Driving lessons, as well as instruction in the mechanism, &c., can also be obtained at Motor Schools, Limited, Heddon-street, Regent-street, London, W.

Some excellent road maxims have been compiled by the editor of the *Car*. He first advises motor-car drivers always to assume that other road users may do the wrong thing, and this is very true, for pedestrians often hesitate and try several courses, and as to taxi-cab drivers you may expect anything. From experience in driving about town, I know that these individuals will pass over and turn off without holding up a hand; also that they will cut in to their own side again much too soon after overtaking another vehicle. Another maxim is that it is the driver's business, not the other man's, to avoid danger. This aphorism, too, might with advantage be impressed on taxi-cab drivers. Of course, in all cases of accident, irrespective of whose fault, the motorist should stop and render any help he can; and for his own sake, in view of possible future accusations or proceedings, he should obtain the names and addresses of any witnesses. It is also advisable to drive slowly when approaching cross roads, passing schools or churches, or turning a corner. However good the brakes may be, it is not always easy to pull up dead at a moment's notice if the car has any way on it. Therefore it is not wise to follow closely in the track of another vehicle, as in the event of that vehicle suddenly stopping it may be difficult to avoid a collision. Always hold up the hand when stopping, and when turning off hold out the hand on the side on which you intend to turn off. Use great caution on approaching any stationary vehicle, especially trams, as they may obstruct from your view a pedestrian or a passenger alighting. There is a regulation, too, that such vehicles are to be passed on the right or off side, but I understand that this will shortly be amended. A temptation, and one to which I fear that in my earlier days I used to yield, is to pass a street refuge on the wrong side, so as to get by a string of slow-moving carts, but the risk makes it really not worth taking, and, in addition, it is not allowed. As to the real one danger—side-slip—the best preventive is to use "non-skids," such as the Continental armoured tyres, if the roads are greasy—anyway, this may be done until the driver has developed confidence and the instinct of how automatically to act if a skid occurs.

How to Reach Home with a Broken Mechanically Operated Inlet Valve Stem.

The easiest way of doing this is, of course, to carry a spare valve and to replace the broken with a new one. If the "spare" is not to be had the end of the damaged valve can be drilled to take a thin nail, which will make the valve stem once more of the correct length, so that when the valve is home on its seat the head of the nail almost touches the top of the valve tappet. The nail can be made secure in the remains of the valve stem by driving in a very thin French nail so as to key it in position. If a nail is not procurable, though most motorists carry such things, having, as a rule, found them in their tyres, then by cutting off some turns of the inlet valve spring so as to make it weaker, the stump of the valve stem can be passed through the spring. A washer can be slipped on and held in place by a nut, which can roughly be forced on to the end of the stem and fixed by burring the stem over it. Of course, a better job is to screw thread the tip of the stem. The mechanically operated valve is thus reduced to becoming an automatic valve, and providing the spring is sufficiently weak it will work as one.

Argyll Cars.

Messrs. Argylls, Limited, have just issued a new catalogue of their cars. Some particulars of their automobiles were given in THE LANCET of May 30th, 1908, and it will be noticed that the 14–16 h.p. model is now provided with dual ignition, having high-tension magneto in addition to the accumulator and coil method of exploding the mixture, which until now was the only one fitted. The price, too, has been reduced, while a complete and efficient set of tools and "spares" is supplied with every car. The company have been completely reorganised, and in addition to the 14–16 h.p. model they are especially drawing attention to an entirely new model, a four-cylinder 12–14 h.p., which is designed on the unit system and is well suited to fulfil the requirements of the medical motorist. Fitted with a two-seated body, it appears very good value for the price asked—£275—and for an additional £10 it is supplied with a standard side-entrance body. The "over-all" length is 11 feet 2 inches, which is also an advantage for a medical man, as this permits of easy turning. The catalogue, in addition to giving particulars of the various models, has some excellent line drawings of the leading components of the chassis. It can be had on application at Argylls, Limited, Alexandria by Glasgow, or from their London Depôt, 6, Great Marlborough-street, W.

On the Cost of Running a 14–16 h.p. Argyll Car.

Dr. J. R. Holmes of Bostal Hill, Plumstead, writes: "I bought a 14–16 h.p. Argyll car fitted with a standard side-entrance body in May, 1907. I unfortunately did not have a speedometer fitted, so I am unable to give the actual distance run, but I have done about 1500 miles touring a year, and, in addition, have had the car out nearly every day for my medical work. Excluding tyres, the only repairs and stoppages I have had are as follows: Block in petrol-pipe, due to some foreign body; hind bolt, holding radius rod in bracket, dropping out. Neither of these delays occupied more than ten minutes. I have occasionally had the car overhauled by my chauffeur, and the following replacements were on some of these occasions carried out: New balls fitted in ball race near brake drum on back axle, three were broken; new guide to one exhaust valve, to replace one which had worn; new bearings to through shaft in gear-box; new bush to differential; new water circulating pump. About £18 would more than cover the cost of these replacements. The cost for tyres was at first heavy, as they were 810 × 90, and rather small for the weight of the car; 815 × 105 non-skidded last for about nine months on the rear wheels; of course the front ones, which are of the round tread kind, run for much longer. The car averages about 18–20 miles to the gallon of petrol. I consider the car now, after two years' running, to be in very good condition; in

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BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

Some Suggestions as to the Care of the Car in Hot Weather.

THE recent and late arrival of summer, unattended by fanning breezes, makes roadside stops the reverse of desirable, and as with the present temperature the wax insulation and filling-in of coils is liable to melt, possible short circuits in engines with coil ignition can be avoided by protecting the coil boxes with asbestos sheeting. Another advantage at this time, when even the effort of pulling the starting handle round to start the engine is exhausting, is to have trembler coil ignition, as with this form the motor will frequently start on the switch. Magneto-fired motors can now be started by merely pressing a button. This device is put on the market by the Aston Motor Accessories Company, Limited, of Birmingham; it consists of an accumulator the current from which is made to pass through the magneto-armature in the correct direction, so that it does not hurt the magnets, but rather strengthens them, and, of course, it causes a spark in the cylinders, so that pressing the button starts the engine. This invention is very simple and can be fitted to any existing magneto. Other points worthy of consideration are the lubricators, the carburettor, and the tyres. With all forms of lubrication it is important to bear in mind that in hot weather the oil is thinner and therefore drips more readily; so to obviate smoky exhaust, and possible sooty plugs, it is as well to regulate the drips that they may not be too generous in the quantity of oil they deliver to the engine. Petrol, too, will vaporize more quickly, so if possible the air inlet should be opened more fully, and if this is not practicable a Rotherham lubricator can be screwed into the side of the air intake-pipe, which can be tapped to receive it; if the lubricator be then opened more air will thus enter. Another device is to drill a hole covered with gauze in the pipe, and if this be done a ring can be fitted to obliterate the aperature on the return of cooler weather. With the heat and dust it is possible that foreign matter may enter and either block the gauze over the petrol inlet at the float chamber or, if a strainer is not fitted, the jet itself may become choked. A halt to remove and clear the jet is not inviting and it is well to obviate it by fitting a gauze strainer where the petrol pipe enters the float chamber. If such a foreign-body filter be employed prior to leaving home it is as well to make sure that the gauze is not rendered impervious to petrol by dust. Personally, I am an advocate for the pumping hard of tyres, a fully inflated inner tube has, I am sure, a longer life; still air expands more in the sun than in the cool garage, and this should be borne in mind when seeing to the tyre pressures before starting out. A burst cover means, even with a Stepney, some minutes' delay, and with the thermometer at 84° F. in the shade putting on that useful and excellent invention does not conduce to a proper appearance for the paying of professional calls. A pressure of from 75 to 80 pounds will be ample for the average-sized driving wheel tyres and less for the front wheels.

Hints on Driving a Motor-car.

Most purchasers arrange, when buying a car, that a professional should accompany them when they take delivery, and anyway give them a few hours' instruction in the management and driving. They thus learn where the petrol tank is, the importance of using a strainer when replenishing so as to prevent the entrance of any foreign body, then to inspect that the water-tank is full and that the circulation is clear, the lubricating reservoir full of suitable oil, the grease cups filled and screwed on tightly, and that the crank case, gear box, and differential chamber contain the requisite lubricant. Retarding the spark and observing that the gear lever is in the neutral notch, the engine is started, and mounting, the driver's seat is taken, the ignition slightly advanced, the clutch depressed, the throttle opened, and the gear lever advanced into the first speed, and, taking care that the brake is off, the clutch is gently let in, and then away should glide the car. I have heard what I looked like myself some ten years ago when first I essayed to command an automobile, and I have seen and helped many other beginners since. The grave face shows that the importance of the occasion is realised; a wide berth is given to the curb and passing traffic,

and with scrupulous care the amateur keeps to his correct side of the road. Joy and elation are experienced when the "Thing" goes; it is taken out for a few miles, turned round where the road is wide and no one is about, and then driven home. Probably after a short trip on the first speed the clutch will be depressed and the second gear brought into mesh, and again letting the clutch in gently and keeping an eye on the road the rate of progression is increased. Then stopping by declutching and putting on the brakes should be practised, and the power of this means will be found out and should give confidence to the driver, though this should not be abused, as the frequent use of the brakes is bad alike for tyres and machinery. Then the car may be taken to a hill, letting the sprag, if there is one, down, and when the engine begins to slacken, declutching and dropping into a lower gear. Changing down as well as into a higher gear is a mere knack; all that is needed is that the teeth of the wheels which are to be brought into mesh should be in such a position that the teeth of one wheel are just opposite the spaces in the pinion into which they are to slide, as otherwise grinding, and maybe even a broken tooth, may result. A careful driver, after declutching gently, moves the speed lever, and can tell by the feel when the spaces and teeth coincide and then will engage them. It is important for the would-be chauffeur to learn to do this, and, as I have already said, it is merely a knack, which with a little practice and patience can soon be acquired. It is as well to first try on the level, for if the gears are missed on a hill, if the sprag jumps the car may run backwards; still, even then an accident should not result if the brakes are put on quickly, and if they have been kept adjusted and act. Having learnt how to drive forward, and how to stop suddenly in cases of emergency and gently for ordinary pull-ups, reversing and driving backwards should be attempted. It has to be remembered that the car must be brought to rest and, of course, the clutch withdrawn before the gear lever is drawn into the reverse, and then, looking backwards, reversing may be practised. I believe that it is best to learn driving on one's own car, and, of course, those who feel nervous can usually arrange with the makers of whatever car they select that an instructor should remain with them for some days, or any way until they feel confident. Those who desire instruction prior to purchasing will find that most dealers are now prepared to give lessons. In London driving lessons are given by capable instructors to members and servants of members by the Royal Automobile Club. Driving lessons, as well as instruction in the mechanism, &c., can also be obtained at Motor Schools, Limited, Heddon-street, Regent-street, London, W.

Some excellent road maxims have been compiled by the editor of the *Car*. He first advises motor-car drivers always to assume that other road users may do the wrong thing, and this is very true, for pedestrians often hesitate and try several courses, and as to taxi-cab drivers you may expect anything. From experience in driving about town, I know that these individuals will pass over and turn off without holding up a hand; also that they will cut in to their own side again much too soon after overtaking another vehicle. Another maxim is that it is the driver's business, not the other man's, to avoid danger. This aphorism, too, might with advantage be impressed on taxi-cab drivers. Of course, in all cases of accident, irrespective of whose fault, the motorist should stop and render any help he can; and for his own sake, in view of possible future accusations or proceedings, he should obtain the names and addresses of any witnesses. It is also advisable to drive slowly when approaching cross roads, passing schools or churches, or turning a corner. However good the brakes may be, it is not always easy to pull up dead at a moment's notice if the car has any way on it. Therefore it is not wise to follow closely in the track of another vehicle, as in the event of that vehicle suddenly stopping it may be difficult to avoid a collision. Always hold up the hand when stopping, and when turning off hold out the hand on the side on which you intend to turn off. Use great caution on approaching any stationary vehicle, especially trams, as they may obstruct from your view a pedestrian or a passenger alighting. There is a regulation, too, that such vehicles are to be passed on the right or off side, but I understand that this will shortly be amended. A temptation, and one to which I fear that in my earlier days I used to yield, is to pass a street refuge on the wrong side, so as to get by a string of slow-moving carts, but the risk makes it really not worth taking, and, in addition, it is not allowed. As to the real one danger—side-slip—the best preventive is to use "non-skids," such as the Continental armoured tyres, if the roads are greasy—anyway, this may be done until the driver has developed confidence and the instinct of how automatically to act if a skid occurs.

How to Reach Home with a Broken Mechanically Operated Inlet Valve Stem.

The easiest way of doing this is, of course, to carry a spare valve and to replace the broken with a new one. If the "spare" is not to be had the end of the damaged valve can be drilled to take a thin nail, which will make the valve stem once more of the correct length, so that when the valve is home on its seat the head of the nail almost touches the top of the valve tappet. The nail can be made secure in the remains of the valve stem by driving in a very thin French nail so as to key it in position. If a nail is not procurable, though most motorists carry such things, having, as a rule, found them in their tyres, then by cutting off some turns of the inlet valve spring so as to make it weaker, the stump of the valve stem can be passed through the spring. A washer can be slipped on and held in place by a nut, which can roughly be forced on to the end of the stem and fixed by burring the stem over it. Of course, a better job is to screw thread the tip of the stem. The mechanically operated valve is thus reduced to becoming an automatic valve, and providing the spring is sufficiently weak it will work as one.

Argyll Cars.

Messrs. Argylls, Limited, have just issued a new catalogue of their cars. Some particulars of their automobiles were given in THE LANCET of May 30th, 1908, and it will be noticed that the 14–16 h.p. model is now provided with dual ignition, having high-tension magneto in addition to the accumulator and coil method of exploding the mixture, which until now was the only one fitted. The price, too, has been reduced, while a complete and efficient set of tools and "spares" is supplied with every car. The company have been completely reorganised, and in addition to the 14–16 h.p. model they are especially drawing attention to an entirely new model, a four-cylinder 12–14 h.p., which is designed on the unit system and is well suited to fulfil the requirements of the medical motorist. Fitted with a two-seated body, it appears very good value for the price asked—£275—and for an additional £10 it is supplied with a standard side-entrance body. The "over-all" length is 11 feet 2 inches, which is also an advantage for a medical man, as this permits of easy turning. The catalogue, in addition to giving particulars of the various models, has some excellent line drawings of the leading components of the chassis. It can be had on application at Argylls, Limited, Alexandria by Glasgow, or from their London Depôt, 6, Great Marlborough-street, W.

On the Cost of Running a 14–16 h.p. Argyll Car.

Dr. J. R. Holmes of Bostal Hill, Plumstead, writes: "I bought a 14–16 h.p. Argyll car fitted with a standard side-entrance body in May, 1907. I unfortunately did not have a speedometer fitted, so I am unable to give the actual distance run, but I have done about 1500 miles touring a year, and, in addition, have had the car out nearly every day for my medical work. Excluding tyres, the only repairs and stoppages I have had are as follows: Block in petrol-pipe, due to some foreign body; hind bolt, holding radius rod in bracket, dropping out. Neither of these delays occupied more than ten minutes. I have occasionally had the car overhauled by my chauffeur, and the following replacements were on some of these occasions carried out: New balls fitted in ball race near brake drum on back axle, three were broken; new guide to one exhaust valve, to replace one which had worn; new bearings to through shaft in gear-box; new bush to differential; new water circulating pump. About £18 would more than cover the cost of these replacements. The cost for tyres was at first heavy, as they were 810 × 90, and rather small for the weight of the car; 815 × 105 non-skidded last for about nine months on the rear wheels; of course the front ones, which are of the round tread kind, run for much longer. The car averages about 18–20 miles to the gallon of petrol. I consider the car now, after two years' running, to be in very good condition; in

fact, quite recently she gained the hill-climbing prize at the Brooklands Meet of the Blackheath Automobile Club."

Publications Received.

From the point of view of the medical motorist there is much general information in "The Chauffeur's Companion," by "A 4-inch Driver" (Messrs. Mills and Boon, Limited), and the volume is bound to interest and be of use. The author starts with a brief and very clear description of the internal combustion engine, and the method of conveying the power obtained from it to the road wheels. The chapters on management, driving, and road stops should certainly help to make the reader one of those lucky individuals, and some really exist, for whom any old car will go. Some of the advice to prospective buyers who order a special body is worth the consideration of the profession, especially as so many doctors order a special body. "Specify everything. Body builders are simply ruinous for extras, and they will charge you any price they think fit if you do not tie them down very tightly. Make the builder keep the body low and have the boards of the seats (not the cushions), especially the back ones, built two inches higher in front than at the back." The writer knows from experience that the difference in comfort is extraordinary.

THE ANNUAL REPORT OF THE GENERAL BOARD OF COMMISSIONERS IN LUNACY IN SCOTLAND.[1]

DURING the year 1908 there was, in the jurisdiction of the Commissioners in Lunacy for Scotland, an increase of 267 in the number of registered lunatics, 223 of these being pauper patients and 44 being private patients. Since 1858 the number of lunatics on the register of the Board has increased 206 per cent., while the increase of population during the same period has been 59 per cent. The total number of private patients rose slowly but steadily for many years, but from 1898 to 1903 the proportion remained unaltered, and since then the numbers have fluctuated slightly, but have shown no real increase. The proportion among pauper patients increased steadily up to 1905, after which the rate of increase either fell or proceeded slowly. In 1902 the number of both classes of patients added to the register amounted to 3669. That number has never since been attained, and was markedly less in the years 1905, 1906, and 1908. A decrease of 105 took place in the last year, as compared with the previous year, which but for a decreased rate of removal from the register by discharge and death must have resulted in a decrease of the total number on the register, notwithstanding the increase of population of the country generally. From 1874 to 1883 an average annual increase of 40·4 persons per 100,000 registered as lunatics occurred, and from 1884 to 1893 the average increase was 41·3. In the succeeding ten years a marked rise took place, the average proportion for that period per 100,000 being 49·2. This period, from 1893 onwards, appears to have coincided with the extensive development of the hospital side of asylums, but this influence appears now to have reached its greatest strength, as during the last five years the average has fallen to 47·7. It would therefore seem that there is a decrease of occurring insanity in forms calling for certification.

The proportion of recoveries among private patients has varied from year to year, but it has shown no certain indications of falling off. Among pauper patients a continuous decrease is recorded between 1880 and 1904, and in the past four years a tendency towards a still further decrease seems to have obtained. It appears that the recovery rates have in recent years been unfavourably affected by the increased use of observation wards connected with the parochial hospitals of several large parishes. These wards receive persons suffering from passing attacks of mental disorder, of whom some, in the absence of such wards, would have been removed to asylums, and would have been discharged recovered shortly after admission. The lowering of the rate is also to be ascribed to the accumulation of chronic patients and to the fact that improved nursing and hospital care have led to the use of asylums for the reception of patients whose age and mental and physical condition are such as to preclude hope of recovery. So far as the death-rate is concerned, there does not seem to be any material change from the rate of preceding years.

The report contains an exceedingly interesting account of the attitude of the Board towards those whom it terms "mentally affected boarders under private care who are not certified." The attitude is so enlightened that it deserves very special attention from the profession at large, and we would also venture to say from the English Board of Commissioners. In England no provision is made for those who are mentally affected but whom it would be mischievous, or absurd, or both mischievous and absurd, to certify. Such a patient cannot be received by those who alone are competent to look after him and assist his cure, but must perforce be certified or kept amidst those home surroundings which are notoriously inimical to his welfare. In Scotland, where a visit from a Commissioner is not regarded by the visitor and the visited as a domiciliary police inquisition, the Board requires the names of uncertified boarders in the houses specially licensed by it to be reported, and if an interview is thought desirable such persons are seen by the Board's medical visitors, who satisfy themselves that certification is not called for. We would draw the attention of our readers to the fact that it is to the medical visitors that this duty is very properly entrusted. The necessity for the sanction of the Board to the residence under private care of mentally affected persons and its right to interfere and to have official knowledge are statutorily limited to the cases of such persons as are found to be insane or whose estates have been placed under the control of the Law Courts owing to their inability to manage their own affairs. Its sanction is not required in the case of patients whose insanity is not confirmed and who have been placed under private care for a period which cannot exceed six months upon a special certificate, nor is there any statutory obligation that it should have knowledge of them. The power of the Board to interfere in such cases would destroy the object of the provision, which the Board regards as an excellent feature of the Scottish law. It does for the wealthier class what is done in the poorer class by those large parishes which have established observation wards for a similar kind of patient. Persons affected with some mental peculiarity not amounting to certifiable insanity but yet rendering supervision necessary are frequently the cause of great domestic distress. They are neither fitted for asylum life nor for home life, and if no means existed for having them suitably supervised and cared for the position of families having such members would be an extremely sad one. In England we would point out there is no such provision, and where hardship is not inflicted it is because the provisions of the law are regarded as antiquated and impracticable, and are therefore disregarded. According to the report, persons willing to receive such boarders, and to afford them the necessary protection and care, fulfil a most useful function and ought not to be interfered with so long as no abuses arise. Many such guardians come within the Board's jurisdiction, but it is further more or less unofficially known to the Commissioners that there are others—such as medical men, ladies, and nurses—not holding their special licence who are willing to receive boarders of this class. Some of these are well known to the Commissioners and invite inspection by the Board's visiting officers. The Board has no special means of ensuring that it shall have a knowledge of all such persons, but it has reason to think that the majority is known to it, and instances have been extremely rare in which any interference has been called for. As a rule, such guardians do not look upon the Board as a body viewing their occupation inimically. They are in consequence open with the Board, and in cases of doubt or difficulty readily consult with the Board's officers, with whom relations are thus established affording the best guarantee against abuses.

It is sometimes contended that the influence which may be exerted by insane boarders upon the children and adult members of a household may be an unfortunate one. One of the Scotch Commissioners after many years' wide experience can only recall four or five instances of insanity appearing in the families of unrelated guardians, and its occurrence in these few instances was rather due to other causes than to the presence of the insane in the house. The same Commissioner speaks in terms of commendation of the efforts of the parish

[1] Fifty-first Annual Report of the General Board of Commissioners in Lunacy in Scotland. Printed for His Majesty's Stationery Office, by James Hedderwick and Sons, Limited, Glasgow. Price 1s. 3d.

of Ruthven to provide for its patients under private care. Another Commissioner describes interesting cases of improvement in the mental state of patients in private houses arising from circumstances which could only occur under that mode of care. It is interesting to note that the lunatic wards of poorhouses are inspected by the Board, and on the whole the impression derived from the report thereon is a favourable one.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of London.—Dr. William Collingridge begins his ninth annual report in a retrospective and comparative vein, and he takes us back 60 years, to a time when Sir John Simon, the first medical officer of the City, was calling attention in his graphic and forcible style to the need for a better water-supply in these words: "In the City of London the supply of water is a fraction of what it should be. Thousands of the population have no supply of it to the houses where they dwell. For their possession of the first necessity of social life such persons wholly depend on their power of attending at some fixed hour of the day, pail in hand, beside the nearest stop-cock, where, with their neighbours, they wait their turn—sometimes not without a struggle—during the tedious dribbling of a single small pipe." And Dr. Collingridge might, if he wished to do so, describe the gradual sweeping away of the shallow wells, the progress and disestablishment of the old water companies, the creation of the Metropolitan Water Board, and, curiously enough, the sinking of private wells right down into the chalk of the London basin, for no other reason than that it was found cheaper to do this than pay the charges of the Water Board. Dr. Collingridge states that a considerable number of artesian wells have recently been sunk in the City, and that more are in contemplation; the water yields on analysis excellent results. Sir John Simon's description of the housing conditions in the City only 60 years ago seems to us in these days little short of appalling. "It is no uncommon thing in a room 12 feet square or less to find three or four families *styed* together (perhaps with infectious diseases among them), filling the same space night and day—men, women, and children in the promiscuous intimacy of cattle." The night population of the City in 1901 was 26,923, but there was no day census taken at that time, and Dr. Collingridge is hoping that there will not be a similar omission in 1911, since he rightly regards it as essential that the number of persons for whose well-being during their working hours the Corporation takes such an active interest should be officially ascertained. It may be added that the cost of taking the last day census was £1350. There was in the summer of last year an outbreak of illness in a large business establishment which was traced to the use of a much advertised rat poison which was said to cause a fatal contagious disease among rodents, but to be harmless to domestic animals and human beings. Only such persons were attacked with vomiting, diarrhœa, and cramp as had dined in a certain room under the floor of which a large number of decomposing mice were found, the mice having been killed by the use of the virus in question. It was apparently concluded that the mice carried the poison about on their feet and thus infected the furniture, plates, and other articles in the dining-room. Dr. Klein found an organism in the stools of the patients which was identical with that found in the virus. With the view of encouraging the process of cremation the Corporation has, at Dr. Collingridge's suggestion, reduced the charges for cremation at Ilford. This method of disposing expeditiously of human bodies finds little favour with the less educated classes and it is an interesting fact that if the list of those who have undergone cremation be examined it will be found how largely the names of well-known persons predominate. The explanation is probably to be found in the fact that to make the necessary anticipatory arrangements for the performance of this ceremony requires more philosophy than is possessed by the less-educated classes. As the secretary of the Cremation Society of England observes, "Cremation in this country is almost wholly confined to persons of some intellectual distinction. The average citizen is still held in the bondage of custom in which sentiment has taken root so deeply as to make it hard to eradicate." At the instance of the Corporation, in conjunction with the Chamber of Commerce, an investigation into tinned meats was made by three bacteriologists—Dr. W. Bulloch, Professor R. T. Hewlett, and Dr. Klein—the samples being taken by Dr. Collingridge and sent to each of the bacteriologists. The results in many cases were unsatisfactory, as all three of the investigators, two of whom were appointed by the Chamber of Commerce, reported that a considerable proportion of the samples were not sterile. In connexion with this question of tinned foods Dr. Collingridge made praiseworthy efforts to bring about the marking of New Zealand tinned foods in such a manner as to indicate when and where they were packed, and it is much to be hoped that he will be as successful in his efforts as he has been in dealing with the soda-water industry in the City. In this case he has succeeded in inducing the trade to accept regulations and to obtain certificates as to the sanitation of their premises and the bacteriological purity of their products. Much useful information will be found in this report as to meat-supplies during 1908.

The City of Birmingham.—The general death-rate of this city, with its estimated population of 558,357, was for 1908 only 15·9 per 1000, which is the lowest death-rate ever recorded, the corresponding rates for Glasgow being 17·7, Liverpool 19·2, and Manchester 18·2. Dr. John Robertson gives, however, reasons for concluding that the methods adopted by the Registrar-General in estimation of populations over-estimates the people of Birmingham by some 25,000 to 30,000. The central portion of the city is decreasing steadily in population, a large number of people seeking the suburbs beyond the city boundaries as being more wholesome and generally pleasanter; perhaps, too, it is cheaper. But one result of this wholesome change is that a large number of people, who during the day earn their livelihood under the protection of Birmingham corporation reside in districts beyond its operations, and Dr. Robertson foresees, if the present drift continues, as it assuredly will, a condition of affairs not unlike that of London, where there is, he says, much overlapping of authorities. He trusts that some means will be found to prevent a similar occurrence in Birmingham. In his opinion there is a well-defined area for a town such as Birmingham, and he suggests that a radius of five miles from the centre of the town might, now that the means of communication have so greatly improved, be taken as a convenient limit. Possibly Dr. Robertson is contemplating a scheme which would extend the city limits to this limit, and if so, and if this extension is allowed, there will soon be a very great increase of the population of what will then be called Birmingham. But Parliament seems somewhat shy of these great extensions, as was shown in the case of Liverpool when she sought to swallow up Bootle. But Parliament and ideas are apt to change. To turn, however, to less debateable points, there is much of interest in the report before us, and the figures relative to the isolation hospital are instructive. Of the cases admitted into the hospital with a certificate of scarlet fever 145, or 7 per cent., were eventually found not to be suffering from this disease, and it seems that of these 145 cases no fewer than 45 contracted the disease, of whom 18 per cent. died. This is a sufficiently serious matter, and it raises questions as to whether there should not be diagnosis at home before removal by a recognised expert. The large number of erroneous diagnoses in 1908 seems to have been in great measure due to an epidemic of German measles. In the case of diphtheria 44 out of 510 admissions were wrongly diagnosed, but fortunately none of them contracted diphtheria in hospital—a fact which may be partly explained by the lower infectivity of the disease and partly by the fact that each patient certified to be suffering from diphtheria is placed in a separate ward until the diagnosis is confirmed or negatived. Apparently this is not so with patients certified to be suffering from scarlet fever, and such isolation accommodation would have to be upon a very large scale. But omission to provide a large number of small wards is certainly the strongest criticism which can be directed against isolation hospitals generally, although the cost of their provision in adequate numbers would be almost prohibitive. However, there is a reasonable mean in all these cases. As regards the antitoxin treatment of diphtheria, it appears that it is not resorted to as much in the poorer as in the better circumstanced districts in spite of the fact that the University provides supplies of antitoxin.

The incidence of enteric fever was lower in 1908 than in any previous year, but the disease amongst the cases which were notified was of a distinctly severe type with a fatality-rate of 25·4 per cent. The death-rate from this disease was 0·09 per 1000 as compared with a death-rate from "fever" in England and Wales of 0·07 per 1000. Norwich yielded a death-rate of 0·29 and Wigan of 0·30 per 1000. The greater part of enteric fever in Birmingham is attributed by the medical officer of health to filth nuisances in connexion with the pan-closets, which were at one time found in every back-yard and which were for the first time vigorously attacked in 1903, an attack which has been carried on incessantly ever since. Each year has shown a marked diminution in the number of these receptacles, and a coincident decrease in the amount of enteric fever in the city, in the same fashion as has been the case in certain other towns where a similar substitution of the water-carriage for the conservancy system of sewage disposal has taken place. In so far as Birmingham is concerned, it is an interesting fact that it was not until the conversion was seriously commenced that a substantial fall in enteric fever took place. There are still 8000 pan-closets left in Birmingham. It has also been found in this city that a considerable proportion of those who suffer from enteric fever at certain times of the year have eaten uncooked shell-fish shortly before attack, but, of course, the etiological importance of this fact cannot be gauged until we know what proportion of the poor population in any given town are in the habit of consuming these shell-fish. In the case of Birmingham it is thought that uncooked mussels have probably been an important factor in producing enteric fever, since in the last quarter of 1908 19 cases out of 74 had consumed mussels shortly before attack. The new Birmingham sanatorium for pulmonary tuberculosis was opened in October, 1908, and an examining physician has been appointed in order to ensure that only favourable cases will be selected, and the medical officer of health entertains hopes that the after-results will compare favourably with those secured elsewhere.

County Borough of Northampton.—Dr. J. Doig McCrindle reports that 32 cases of pulmonary tuberculosis applied for sanatorium treatment during the year, and 11 were rejected as unsuitable. As regards the remainder, one went to a private sanatorium, one or two others refused to accept a bed, and 11 others were rejected by the medical referee. Thus only nine survived the tests of one or another kind, and of these one obtained a letter of admission through another source, while another was eventually refused by the sanatorium as too advanced. This is rather a harrowing tale of rejection. Seven cases completed treatment during 1908. Dr. McCrindle thinks that sanatorium treatment alone, unaccompanied by rigorous after-care, is somewhat disappointing among the poorer classes, and this was apparently the opinion of his predecessor, who inaugurated the system and who wrote in 1906: "The results are decidedly disappointing to those who pin their faith to sanatorium treatment, but they illustrate the correctness of this view put before the sanitary committee, that amongst the poor sanatorium treatment, unless followed up by home treatment with sufficient food and outdoor work of not too severe a character, is likely to prove unsuccessful." Dr. McCrindle furnishes the after-history of the patients sent to sanatoriums during previous years. At periods varying from 13 months to 2 years four months after discharge 11 out of 23 patients were at work (barely 48 per cent.). Over 26 per cent. were dead and the same proportion quite incapacitated for work. But provision is also made in the local isolation hospital for ten advanced cases, the idea being that of segregation. But under the rest and diet obtained at the hospital the patients improve so much that they desire to return home.

County Borough of St. Helens.—Dr. J. J. Buchan, in the course of some interesting observations relative to infantile mortality in this town, refers to the question of the insurance of infants under one year of age. There has been some decrease in this practice since the comments made in the last annual report. Although, Dr. Buchan remarks, the practice may have much to commend it on grounds of forethought and prudence, it does not act in beneficial fashion to the infants. It is not, he thinks, that the parents wish the infants to die, but in many cases they wish to profit as much as possible if it does die, and he refers to a case in which a premature weakly infant only lived a few hours, but long enough to enable it to be insured for a considerable sum even in the early morning hours. Of the number of infants born in 1907, 80·6 per cent. were insured, as against 72·1 per cent. of those born in 1908.

Metropolitan Borough of Woolwich.—The Plumstead well of the Metropolitan Water Board appears to be yielding a water unduly high in chlorine and of considerable hardness, but it is found that by reducing the rate of pumping the chlorine has been reduced from 10 to 6 parts per 100,000. The water examination committee does not regard either the chlorine or the hardness as prejudicial to health, and the water is, in its opinion, satisfactory both from a chemical and bacteriological standpoint. Question has, however, arisen, as in the case of other wells in estuary valleys or near the coast, whether excess of chlorine may not be due to insuction of polluted Thames water. Dr. Sidney Davies thinks that the Water Board should not be content until it has reduced the chlorine in the Plumstead well to the level of the Kent waters, as a well about half a mile from this contains only 3·1 grains per 100,000 of chlorine. Dr. Davies expresses the opinion that the well should be closed until both the hardness and the chlorine are reduced to the Kent water standard. The council of this borough has for several years past sent patients suffering from pulmonary tuberculosis to a sanatorium near Reading, and Dr. Davies has presented the after-results in the only fashion which brings out the actual facts—i.e., he keeps the cases for each year separate from those of others, so that the cases discharged in, say, 1904 can be followed up and their condition in January, 1909, stated. Of 12 cases discharged in 1904 there were in January, 1909, seven dead, three working, and two lost sight of; of 16 discharged in 1900, nine were dead, two were working, two alive but not working, and three lost sight of. Of those recorded at work a few are employed at the sanatorium in various capacities, receiving board and a small wage. Of those lost sight of some are believed to be well and working.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8285 births and 3632 deaths were registered during the week ending August 14th. The annual rate of mortality in these towns, which had been 10·6, 10·8, and 10·5 per 1000 in the three preceding weeks, rose again last week to 11·5 per 1000. During the first six weeks of the current quarter the annual death-rate in these towns has averaged only 11·1 per 1000, the rate in London during the same period being as low as 10·7 per 1000. The lowest rates of mortality recorded in the 76 towns last week were 2·8 in Leyton, 4·6 in Walthamstow, 5·7 in King's Norton and in Preston, and 5·8 in Barrow-in-Furness; the highest rates were 15·7 in Walsall, 15·8 in Halifax, 16·4 in Swansea, 17·3 in Rhondda, 19·2 in West Bromwich, and 23·3 in Newport (Mon.). In London the recorded death-rate last week was 11·3 per 1000, being 1·2 per 1000 above the rate for the previous week. The 3632 deaths in the 76 towns last week showed an increase of 321 over the exceptionally low number in the preceding week, and included 413 which were referred to the principal epidemic diseases, against 313, 315, and 336 in the three preceding weeks; of these 413 deaths 208 resulted from diarrhœa, 87 from measles, 37 from whooping-cough, 33 from diphtheria, 32 from scarlet fever, and 16 from "fever" (principally enteric), but not one from small-pox. The 413 deaths from these epidemic diseases last week were equal to an annual rate of 1·3 per 1000, against 1·1 in the preceding week. No death from any of these epidemic diseases was registered last week in Bradford, Willesden, East Ham, Brighton, or in 14 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·2 in West Ham and in Salford, 3·4 in Plymouth, 3·5 in Middlesbrough and in Rhondda, 5·2 in West Bromwich, and 7·3 in Newport (Mon.). The fatal cases of diarrhœa in the 76 towns, which had increased from 49 to 127 in the six preceding weeks, further rose last week to 208, and caused death-rates ranging upwards to 2·1 in Plymouth and in Swansea, 2·2 in West Bromwich, and 2·3 in Bootle and in Rhondda. The deaths from measles, which had been 95, 80, and 83 in the three preceding weeks, rose again to 87 in the week under notice, the highest death-rates from this disease being 1·7 in Salford, 2·5 in Wolverhampton, 3·0 in West Bromwich, and 7·3 in Newport (Mon.).

The fatal cases of whooping-cough, which had been 48 and 52 in the two preceding weeks, declined again last week to 37 and were considerably fewer than the number in any previous week of the year. The deaths from diphtheria numbered 33 last week, against 41 and 34 in the two preceding weeks; the greatest proportional mortality from this disease was recorded in King's Norton. The fatal cases of scarlet fever, which had been 32, 25, and 28 in the three preceding weeks, rose again last week to 32, and caused death-rates ranging upwards to 1·3 in West Hartlepool and 1·4 in Warrington. The deaths referred to "fever," which had been 11, eight, and 12 in the three preceding weeks, further rose to 16 in the week under notice, and included three in Grimsby and two each in London and in Manchester. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospitals, which in the four preceding weeks had declined from 2737 to 2564, had further fallen to 2518 at the end of last week; 298 new cases were admitted during the week, against 367, 296, and 280 in the three preceding weeks. Of the 1047 deaths registered in London last week, 125 were referred to pneumonia and other diseases of the respiratory system, the average number for the corresponding period of the five preceding years being 126. The causes of 21, or 0·6 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. The causes of all the deaths registered during the week were duly certified in Leeds, Sheffield, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, and in 56 smaller towns; the 21 uncertified causes of death in the 76 towns included five in Liverpool, three in London, and two each in St. Helens and in Rochdale.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 863 births and 452 deaths were registered during the week ending August 14th. The annual rate of mortality in these towns, which had been 12·5, 11·8, and 12·0 per 1000 in the three preceding weeks, further rose to 12·6 per 1000 last week. During the first six weeks of the quarter the death-rate in these Scotch towns averaged 12·4 per 1000, or 1·3 per 1000 more than the mean rate in the 76 large English towns during the same period. The death-rates last week in these Scotch towns ranged from 11·3 in Edinburgh and 11·7 in Dundee, to 14·1 in Perth, and 16·4 in Leith. The 452 deaths from all causes in the eight towns were 23 in excess of the number in the preceding week, and included 44 which were referred to the principal epidemic diseases, against 39 and 50 in the two preceding weeks. These 44 deaths were equal to an annual rate of 1·2 per 1000, which was slightly lower than the mean rate last week from the same diseases in the 76 large English towns. Of the 44 deaths from these epidemic diseases, 17 were attributed to diarrhœa, nine to whooping-cough, seven to "fever," five to scarlet fever, four to measles, and two to diphtheria, but not any to small-pox. The fatal cases of diarrhœa, which had been 13 and 20 in the two preceding weeks, declined again last week to 17, of which eight occurred in Glasgow, three in Dundee, two in Edinburgh, and two in Greenock. The deaths from whooping-cough, which had been 15 and 14 in the two preceding weeks, further declined to nine in the week under notice, and included five in Edinburgh. The deaths referred to different forms of "fever," which had been three, three, and four in the three preceding weeks, increased to seven last week; of these seven deaths, one in Aberdeen was attributed to cerebro-spinal meningitis, one in Glasgow to typhus, and four in Glasgow and one in Dundee to enteric. Of the five fatal cases of scarlet fever two were registered in Glasgow and two in Edinburgh. The deaths from measles, which had been 14, three, and six in the three preceding weeks, declined again last week to four, and included three in Glasgow. The deaths referred to diseases of the respiratory organs in these eight towns, which had been 49, 43, and 51 in the three preceding weeks, were 48 in the week under notice, and were three in excess of the number in the corresponding period of last year. The deaths in these towns included 23 which were referred to different forms of violence; of these 13 occurred in Glasgow, three in Edinburgh, and three in Aberdeen. The causes of 7, or 1·5 per cent., of the deaths in the eight towns were uncertified; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·6 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been 14·4, 17·4, and 15·2 per 1000 in the three preceding weeks, further declined to 13·5 in the week ending August 14th. During the first six weeks of the quarter the death-rate averaged 15·5 per 1000, whereas the mean rate during the same period did not exceed 10·7 in London and 12·6 in Edinburgh. The 103 deaths of Dublin residents registered during the week showed a decline of 13 from the number in the preceding week, and included 12 which were referred to the principal epidemic diseases, against nine, 15, and 12 in the three preceding weeks. These 12 deaths were equal to an annual rate of 1·6 per 1000, the death-rate from the principal epidemic diseases being 1·0 in London and 1·5 in Edinburgh. Of the 12 deaths from these epidemic diseases in Dublin nine resulted from diarrhœa, two from whooping-cough, and one from measles, but not any from small-pox, scarlet fever, diphtheria, or enteric fever; the nine deaths from diarrhœa exceeded by four the number returned in each of the two preceding weeks. The 103 deaths included 32 of infants under one year of age, and 25 of persons aged upwards of 60 years; the deaths of infants exceeded the number in the preceding week, while those of elderly persons showed a decline. Five inquest cases and three deaths from violence were registered during the week; and 40, or nearly two-fifths, of the deaths occurred in public institutions. The causes of four of the deaths in Dublin last week were not certified either by a registered medical practitioner or by a coroner; in London three of the deaths, and in Edinburgh two, were not certified.

THE SERVICES.

A NEW SCHEME FOR THE ORGANISATION OF RED CROSS AID FOR THE ARMY IN ENGLAND AND WALES.

THE Secretary of the War Office has sent a letter to the secretaries of all Territorial County Associations in England and Wales in which he states that as a result of a conference between the Army Council, the council of the British Red Cross Society, and the chairman of certain of the county associations, the Army Council has prepared a detailed "scheme for the organisation of voluntary aid in England and Wales," with the purpose of affording relief to the sick and wounded in connexion with home defence. He has forwarded this scheme with the letter to the county associations requesting them to communicate at once with the council of the British Red Cross Society with a view to initiating the formation of voluntary aid detachments, if it is not their wish to themselves undertake the formation and training of such bodies. The British Red Cross Society has recently been incorporated by Royal Charter, under the patronage of His Majesty the King and the presidency of the Queen, Lord Rothschild being chairman of council and Sir Frederick Treves chairman of the executive committee. The society exists "to furnish aid to the sick and wounded in time of war" in which British troops may be engaged.

The particulars of the scheme are set out in an official publication, which with its appendices contains 43 pages and includes three coloured diagrams explaining the administrative relations that will exist between the War Office, the British Red Cross Society, the county associations and their voluntary aid detachments in time of peace, and between those detachments and the medical service of the army in the field when on a war footing. The following summary is given of the scheme, which, it will be noted, provides for the active coöperation of medical women, nurses, and other women workers:—

1. The scheme has been modelled upon those which already exist in certain foreign countries.

2. The necessity for voluntary aid for sick and wounded in war in the home territory is fully recognised by the inhabitants of the United Kingdom.

3. There is a tendency for societies, having in view the rendering of assistance to sick and wounded in war, to act independently one of the other. Efficiency cannot be attained unless all voluntary aid be coördinated.

4. In the scheme the county system has been adopted, because it is the system upon which the Territorial Force is organised, and which the British Red Cross Society has adopted as the basis of its constitution.

5. The County Association therefore is charged with the responsibility of the organisation of voluntary aid in the country.

6. Each County Association should through the medium of the local branches of the British Red Cross Society form "voluntary aid detachments," with an establishment which is laid down in the scheme; also each county group of voluntary aid detachments (and there need be no limit to the number of such detachments), should be under the command of a County Director, and each detachment should be capable of being used either as a clearing hospital, or as a rest station, or as an ambulance train *personnel*, as the circumstances of the moment may demand in the time of war.

7. Each voluntary aid detachment should therefore be trained in such a manner as will enable it to perform any one of these functions.

8. The training and equipment of voluntary aid detachments will be carried out in whatever way the British Red Cross Society may think fit; but they should be so arranged as to enable the detachments to make use of local resources for improvising accommodation and transport of wounded, and for providing for their temporary care and treatment until they reach the general hospitals. Men's detachments would therefore be specially trained in transport of wounded, and women's detachments in the preparation of food and in nursing duties.

The *personnel* recommended for each Voluntary Aid Detachment is as follows:—A. Men's Division (British Red Cross Society): 1 commandant and 1 assistant-commandant (if possible these are to be officers with military medical training); 2 medical officers; 1 quartermaster and 1 assistant-quartermaster; 2 pharmacists and 2 assistant-pharmacists; 4 under officers and 48 men. B. Women's Division: 1 commandant and 1 assistant-commandant (these being medical officers); 1 quartermaster and 1 assistant-quartermaster; 2 lady superintendents and 20 women, of whom 2 shall be fully trained nurses. This establishment allows of the divison of the whole detachment into two completely organised halves.

9. In order to obtain some uniformity in the standard of efficiency of voluntary aid detachments there will be annual or other inspections by military authorities, and a return of the members of each detachment will be submitted through the county associations to general officers commanding-in-chief periodically by each county director of voluntary aid detachments.

10. In time of war the evacuation of sick and wounded of the Territorial Forces will be under the direction of officers of the Royal Army Medical Corps or other officers appointed for the purpose, and voluntary aid detachments will be placed at their disposal and under their orders according to requirements.

11. If county associations fail to obtain an organisation of voluntary aid detachments to fill the gaps in the medical service between field ambulances and general hospitals they must report the facts to general officers commanding-in-chief.

12. As regards general hospitals, county associations should either themselves or through the British Red Cross Society proceed to select the necessary buildings in consultation with administrative medical officers, officers commanding the general hospitals, and sanitary officers of their territorial division; and plans should be drawn up showing how the buildings will be arranged for hospital purposes; the organising matron also being consulted regarding these.

13. Schedules of equipment for general hospitals are drawn up in the scheme as a guide. County associations should delegate to the British Red Cross Society the duty of providing the equipment and should satisfy themselves that it will be ready on mobilisation.

14. Supplementary personnel required for general hospitals should be obtained from voluntary aid detachments which will be allotted on mobilisation for this purpose only.

15. Wounded may accumulate in excess of the number of beds vacant in the general hospitals. The formation of convalescent homes and depôts and provision for expansion of the general hospitals must therefore be contemplated. County associations should be responsible for taking the initiative in asking the British Red Cross Society to submit schemes in time of peace for forming convalescent homes and auxiliary hospitals.

Full details of the scheme follow this outline, and three appendices describe (1) the organisation of the medical service of the Army; (2) the organisation and resources of the Red Cross Society of Japan (a report by Lieutenant-Colonel W. G. Macpherson, C.M.G., R.A.M.C.); and (3) the detailed equipment of military hospitals (comprising schedules of all furniture, utensils, medicines, and stores).

ROYAL NAVY MEDICAL SERVICE.

The undermentioned Surgeons have been promoted to the rank of Staff-Surgeon in His Majesty's Fleet:—Thomas Brown Shaw, Alfred Thomas Gailleton, George Sandys Davidge, and Percival Thomas Nicholls (dated August 10th, 1909).

The following appointments are notified:—Fleet-Surgeons: F. W. Parker to Portland Hospital, and P. E. Maitland to the *Albion*, on recommissioning. Staff-Surgeon: J. O'Hea to the *Victory*, additional, for disposal. Surgeons: L. C. Rowan-Robinson to the *Drake*; S. H. Vickery to the *Impregnable*; and W. Mearns to the *Actaeon*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. J. S. Simpson, C.M.G., has been appointed to the Eastern Command for duty. Lieutenant-Colonel A. T. I. Lilly and Major J. Thomson have been instructed to prepare for embarkation for India.

INDIAN MEDICAL SERVICE.

The promotion of Major Asher Leventon is antedated to Jan. 29th, 1907. The promotion of Major Jasper Maxwell Woolley is antedated to July 29th, 1908.

The King has approved of the following promotions:—Lieutenants to be Captains: Arthur Falconer Hayden (provisionally) (dated Sept. 1st, 1908); Percy Strickland Mills (provisionally) and Frank Phillips Wernicke (dated Feb. 1st, 1909); and Charles Richard O'Brien, Norman Haliburton Hume, Greer Edmund Malcolmson, and Duncan Macdonald Cochrane Church (dated March 1st, 1909).

Major F. D. Browne has been appointed to the substantive medical charge of the 112th Infantry, Kohat; and Captain A. S. M. Peebles is appointed to the substantive medical charge of the 18th Lancers, *vice* Captain R. F. Baird.

ROYAL VICTORIAN ORDER.

The King has appointed Fleet-Surgeon Cyril James Mansfield, R.N., H.M.S. *Indomitable*, to be a Member of the Fourth Class of the Royal Victorian Order.

DEATHS IN THE SERVICES.

Brigade Surgeon-Lieutenant-Colonel Edwin James Fairland, A.M.S. (retired), on August 6th, at Bournemouth, aged 65. He entered the service in 1867 as assistant-surgeon, was promoted surgeon in 1873, surgeon-major in 1879, surgeon-lieutenant-colonel in 1887, and brigade surgeon-lieutenant-colonel in 1893. He served in the Abyssinian campaign from November, 1867, to July, 1868 (medal). He retired in 1897.

THE TERRITORIAL ARMY IN WAR.

In an interesting article on "The Health of the Territorial Army in War," in the *Broad Arrow* of August 14th, Lieutenant-Colonel W. Hill Climo, A.M.S. (retired), said that it is an unjustifiable assumption "that, as the Territorial Army will not be serving outside the United Kingdom, it will not be exposed to conditions inimical to health either in regard to its endurance or to environment and climate. Some such optimistic opinions were held about the Boer War, and we know with what disastrous results, though probably the climate of South Africa is the most favourable in the world for the conduct of a campaign, and though no army ever before was so lavishly provided with food and other supplies. An army, organised as the Territorial Army is, if mobilised for service in the Garden of Eden, would, under service conditions, be liable to dysentery and enteric fever. In England it would be impossible to bring 10,000 troops together free from the seeds of enteric fever, which under the stress of war would become epidemic. The best medical service in the world could not prevent its occurrence with unseasoned and immature troops. Voluntary service armies are notoriously the most unhealthy, and the Anglo-Saxon race is perhaps the most susceptible to these epidemic diseases, the brunt of which falls on the intestinal tract."

Correspondence.

"Audi alteram partem."

THE DANGERS OF CARBON TETRA-CHLORIDE.

To the Editor of THE LANCET.

SIR,—I have read with much interest the article published in your issue of August 7th on the toxicity of carbon tetrachloride. Three cases in which ill effects have followed the use of a dry shampoo have recently come to my notice. In the first case, a girl, aged 22 years, became, according to her own statement, "completely unconscious" whilst her hair was being treated with a patent non-inflammable dry shampoo. Under the same treatment at the same hairdresser's a second lady, aged 26 years, became "deafer and deafer" until she was obliged to ask the operator to desist, fearing that she was going to faint. At another establishment a lady, aged 40 years, became so faint during the application of a dry

shampoo that the process had to be stopped. All the windows in the room were thrown wide open, and at the end of half an hour the lady had sufficiently recovered to have her hair hastily dressed. Still feeling very faint and shaken, she was then driven straight to her home in a cab. These three cases occurred before the recent fatal case, and I have hesitated to publish them because although the histories came to me at first hand they were not given me in my professional capacity and were not scientifically investigated. The patients were in good health and almost certainly free from cardiac weakness.

I am astonished to learn that in spite of the recent fatality the use of this shampoo continues unchecked, the public being apparently lulled into a sense of security by the medical evidence, which stated that the lady who died suffered from heart disease. The hairdressers justify themselves by stating that although untoward symptoms occur amongst their customers the operators have never been known to have been affected. Their immunity is fully explained by the weight of the vapour of tetrachloride of carbon, which, according to Dr. Veley, is five times that of air. Unless my experience has been exceptional, there should be abundant clinical evidence in support of the views as to the dangers of tetrachloride of carbon which Dr. A. Waller and Dr. Veley base on laboratory experiment, and the use by hairdressers of shampoos containing so poisonous a substance should certainly be prohibited.

I am, Sir, yours faithfully,

August 16th, 1909. J. E. SANDILANDS, M.D. Camb.

THE NATURE OF ANGINA PECTORIS.

To the Editor of THE LANCET.

SIR,—May I trespass on your space to urge once more the desirability of the abolition of the terms "false" angina pectoris, "pseudo" angina pectoris, and the like. In an article on angina pectoris which I contributed to THE LANCET in 1903,[1] I suggested that the name "angina cordis" might be applied to these and allied forms of cardiac perturbation. The term angina cordis, moreover, expresses more or less exactly the condition of the heart in these attacks and it can be suitably qualified in accordance with its mode of origin, as, for instance, angina cordis vaso-motoria, angina cordis toxicata, &c. The adoption of this nomenclature would not only get rid of the misnomer and consequent nosological confusion involved in the use of the term "false" angina pectoris, &c., but would also promote much greater precision in the recognition and description of several hitherto ill-defined forms of anginal attack.

Might I also briefly comment on Sir T. Clifford Allbutt's position in respect to the causation of angina pectoris. As Sir R. Douglas Powell points out, it is hardly possible that aortic stretching can be the only cause of angina pectoris, nor, in my opinion, is it adequate to explain all the symptoms of the anginal attack. Furthermore, the large majority of the conditions that unquestionably give rise to aortic stress are not associated with anginal symptoms; and, on the other hand, true anginal attacks are not very uncommon, in my limited experience, without any evidence, either clinical or pathological, of aortic stretching.

I have urged the importance of the localised patchy distribution of the degenerative changes that may be found in the cardiac wall in cases of angina pectoris, since in the distension and stretching of these diseased areas during the cardiac systole I find an explanation of the phenomena of the anginal syndrome. For a full exposition of this hypothesis I must, out of consideration for your space, refer your readers to my article, but I should like to point out that a satisfactory explanation of the pathogenesis of angina pectoris must account not only for the dolor pectoris but also for the angor animi. I am, Sir, yours faithfully,

London, W., August 14th, 1909. E. H. COLBECK.

To the Editor of THE LANCET.

SIR,—The few remarks which I propose to make on this important question are the result of my clinical experience of a very large number of cases of heart disease. I find that true angina pectoris major (I confine my attention to this) is an exceedingly rare condition amongst the poorer classes, and during the last 12 years, out of over 50,000 hospital cases of all varieties of disease, I have only met with three cases of angina pectoris; on the other hand, amongst the well-to-do classes of society one meets with it more frequently, and especially in those males afflicted with gout. The hypothesis which I venture to put before you is, that true "angina pectoris is due to spasm or cramp of the heart muscle, which comes on suddenly after exertion as a rule, and passes off as it came."

I cannot here discuss the various theories which have been advanced by great authorities as to the cause of the symptoms which are so distressing and often fatal, but I will confine my remarks to one or two points. It has been said that angina pectoris is due to sudden dilatation of the auricles or ventricles, either in association with valvular disease or often severe heart strain. My clinical and post-mortem experience does not support that view. One frequently sees athletes after a severe and punishing race like a quarter mile, or during a football match, become "winded." The heart has become over-distended and they suffer from acute dyspnœa, but there is no pain and compensation is soon restored. I have never seen the symptoms of angina pectoris occur in a heart with broken compensation, and I thoroughly agree with Sir Clifford Allbutt when he says that the aorta is chiefly associated with these distressing symptoms. Three cases which I have noticed in hospital were of a very severe type and all terminated fatally, but, strange to say, none of the cases died during an attack or even near an attack of angina pectoris. Two of them occurred regularly after an excess of food, the third one developed angina occasionally after smoking strong tobacco. I kept very careful notes of the clinical course and also of the necropsies of these three patients. In the first case the heart was enlarged, weighing 12½ ounces, there was hypertrophy of the left ventricle with thickening of the aortic valves, and marked atheroma of the aorta through its whole extent. None of the chambers of the heart were distended, and the left side of the heart was quite empty. In Case No. 2 the heart was slightly enlarged with hypertrophy of the left ventricle and some aortic incompetence. In this case also the aorta showed atheroma. The heart itself was in a state of firm contraction. The coronary arteries in both these cases were patent and there was very little evidence of arterial degeneration. In the third case, where the attacks were induced by smoking, the heart was to all appearances quite healthy and the man died from advanced kidney disease.

To look at the other side of the picture, I have made necropsies on some hundreds of cases of heart disease in all its forms, including aneurysm and intra-thoracic growths, and I am sure that it is the experience of all of us that it is common to see all the various lesions and degenerations associated with the heart without the slightest sign during life of angina pectoris, so that we cannot say that diseases of the valves of the heart or of the aorta alone are the cause of angina. There seems to be some affinity or relation between gout, especially the gouty heart, and angina pectoris, and as it is rare to see acute gout in the female so it is rare to see angina pectoris; in fact, I have not met with a true case in the female. Then with regard to its neuralgic character, although the pain is severe and excruciating, extending, as Head has said, into various nervous areas, still the character of the pain cannot be said to coincide with neuralgia. The sudden onset, short duration, and rapid cessation are quite opposed to neuralgia and yet would correspond with spasm or cramp of the heart muscle. It is well known that gouty people are very prone to attacks of cramp, and it is quite feasible to suppose that the heart muscle may be subject to cramp also, and that the administration of any drug which produces dilatation of the arteries may also relieve muscular spasm.

Another point to consider is the extraordinary feeling which the patient suffers of impending death. In many cases, however, this feeling is due to fright caused by the intense pain. Patients have told me that the very thought of the possibility of an attack would produce the same kind of fear, and such patients live in constant dread of an attack. I have recently had under my care a gentleman of highly gouty tendencies who has been subject to attacks of angina pectoris for over 25 years. He had aortic disease following rheumatism, and although the pain towards the end of his life was just as acute, yet he told me that the fear and dread

[1] Angina Pectoris, a Criticism and a Hypothesis, THE LANCET, March 21st, 1903, p. 793.

of death had entirely disappeared because, as he said, he knew he would get relief from his nitro-glycerine or nitrite of amyl. I am quite aware that my contribution to this debate is of very little value, because I cannot reconcile the symptoms produced by angina pectoris with those found during life and after death, and I have come to the conclusion after a long observation of hospital cases that angina pectoris is much more common amongst the rich than amongst the poor; that it is associated as a rule with gout; and that it is caused by spasm of the muscular structures of the heart, which is immediately relieved by some vaso-dilator.

I am, Sir, yours faithfully,

Liverpool, August 16th, 1909. NATHAN RAW.

THE MODERN TREATMENT OF TUBERCULOUS JOINTS.

To the Editor of THE LANCET.

SIR,—In opening the discussion on the modern treatment of tuberculous joints at the recent meeting of the British Medical Association I am reported in THE LANCET to have said: "Bier's congestive method was sometimes useful, but occasionally the results had been disastrous." I stated that disaster had followed the *exclusive* use of tuberculin and of Bier's congestive method, and that they should be used as mere allies to other recognised methods. I am further reported as saying that I favoured the reduction of spinal deformity at whatever stage the disease. I stated precisely the contrary.

I am, Sir, yours faithfully,

Liverpool, August 16th, 1909. ROBERT JONES.

AN OPERATION FOR THE TOTAL EXCISION OF TONSILS.

To the Editor of THE LANCET.

SIR,—I read with much interest in your last week's issue the letter from your correspondent, Mr. H. B. Mylvaganam, recording the successful performance of the operation of complete tonsillectomy in 300 cases. He does me the honour of associating my method of procedure with his own—"there is practically very little difference in the technique adopted by Mr. Waugh and myself"—and then devotes the rest of his article to repudiating those principles which I regard as essential to my operation and which render it a simple, rapid, and bloodless procedure. I feel, therefore, that I should be doing him an injustice if I accepted the proffered compliment.

He writes as follows: 1. "In operations on the throat and nose the anæsthetic is not pushed to the same extent as required for operations on other parts of the body." 2. "Having partially anæsthetised the patient the head is allowed *to hang well over the edge of the table.*" 3. "It is not absolutely necessary to define the capsule of the tonsil. If any pieces are left behind they can be felt by the finger and removed by the scissors or by the punch forceps." He then continues: "One drawback to this method of removing the tonsils is the hæmorrhage which follows in some cases. It often struck me that the amount of hæmorrage was out of proportion to the quantity of tonsillar tissue removed." Therein I agree with him, only I regard the hæmorrhage as the direct outcome of his procedure which I have detailed above in his own words. It is clear that the amount of hæmorrhage in any operation must depend partially upon the ease with which vessels severed at the site of the operation can retract and contract, and partially upon the avoidance of any procedure which tends to produce local engorgement of the vessels during the operation. By defining the capsule of the tonsil at the first incision the rest of the operation is conducted in the line of cleavage between the capsule and the pharyngeal wall, so that the severed tonsillar vessels can retract immediately into the muscular wall. Consequently, as my experience has shown me, the cessation of hæmorrhage is spontaneous and rapid. I have therefore never used any hæmostatics, not even "hot sponges on holders," nor are there any "pieces left, which can be felt by the finger and subsequently be removed by scissors or punch forceps."

Local engorgement of the blood-vessels of the head and neck can be brought about in two ways—i.e., by the effect of gravity upon the venous circulation, and by the performance of the normal physiological acts of swallowing and coughing. At the end of ordinary expiration there is an accumulation of blood in the extra-thoracic veins. If expiration is prolonged to such an extent as to culminate in the explosive act of coughing the venous engorgement becomes excessive and consequently the flow of blood from torn veins will be free and copious. By the position in which I place my patients on the operating table with merely a sandbag under the shoulders I avoid the effects of gravity upon the venous circulation and at the same time there is a sufficient slope of the pharynx to enable the blood to trickle towards the roof of the naso-pharynx. By the employment of a brief deep anæsthesia coughing and swallowing are prevented. Consequently my operation is strikingly free from hæmorrhage and the position of the patient gives me a view of the field of operation sufficient to remove the whole tonsil. I need no better view.

Mr. Mylvaganam reassures me that he was completely unaware of my method until he read of it in THE LANCET, and whilst he is courteous enough to associate our methods as being similar I must own that I should have hesitated to do so if he had not suggested it. With regard to the use of the conchatome as a retractor, I must express my indebtedness to Mr. Steward of Guy's Hospital for bringing it to my notice for the purpose of punching out tonsils. I found that when used in that way it soon became blunted, and that then it held tonsils firmly without tearing them. My original paper, which was written nearly a year ago, includes the cases which I had operated on continuously since August, 1906. Since then I have performed the operation on more than 1500 cases, and I still have no untoward events to record.

I am, Sir, yours faithfully,

GEORGE E. WAUGH,
Surgeon to Out-patients, the Children's Hospital, Great Ormond-street, W.C.

Welbeck-street, W., August 18th, 1909.

A CORONER'S COURTESY.

To the Editor of THE LANCET.

SIR,—Enclosed is a reply I received from the coroner for the county of Anglesea, to a letter of mine reporting a case of sudden death. The man was dead before I arrived at the house. The deceased had never been attended by any medical man.—I am, Sir, yours faithfully,

R. ARTHUR JONES.

Bod Idris, Menai Bridge, August 4th, 1909.

[ENCLOSURE.]

High St., Bangor, N. Wales.

CORONERSHIP.

DEAR SIR,—I am in receipt of your letter stating that a man aged 66 died at Orsedd, Garnedd Goch, last night and that you never attended him, but that you were the Medical Attendant of his brother and sister, without saying how he came to his death.

I presume there are hundreds of people in Anglesey dying without your attending them and which in no way concern me.

Why, therefore, you send me a note to that effect only I cannot understand as I presume there are hundreds of people dying in Anglesey without your ever attending them, and which, as I have said, in no way concern me as Coroner. Yours truly

R. JONES ROBERTS.

*** Mr. R. Arthur Jones here went out of his way to give Mr. R. Jones Roberts early notice of the occurrence of a death in his district with regard to which it would be the duty of any coroner to make immediate inquiry in order to ascertain whether it might be a case for an inquest or not. There seems to have been no medical man in attendance on the deceased, but Mr. Jones saw the body very shortly after death, though not before death took place. It was not, then, the duty of Mr. Jones to inform the coroner of the death, in the sense that there was no legal obligation upon him to do so. Had he not done so the coroner would probably have received through some other channel an intimation later that it had taken place. It was just a courteous act on Mr. Jones's part, and possibly also one prompted by a desire to assist the relatives, and to let the coroner know that there was a case for his attention. In these circumstances comment on the coroner's letter

is not required: it condemns itself. Fortunately, these cases are rare, and it is to be hoped that the much-needed amendment of the Coroners Act will supply rules of procedure calculated to prevent such occurrences. In the present condition of the law, as we explain this week in a leading article, where no certificate of the cause of death is forthcoming, the preliminary stages which lead up to an inquest or to the dispensing with one are not very clearly marked out. Inquiries have to be made and things work smoothly or not according to the relations existing between the coroners and the medical practitioners. These relations are not likely to be improved by any letter similar to that of Mr. R. Jones Roberts.—ED. L.

THE TERRITORIAL MEDICAL SERVICE.[1]

(FROM A SPECIAL CORRESPONDENT.)

IV.—THE MEDICAL EXAMINATION OF RECRUITS: THE SELECTION OF MEN FOR ACTIVE SERVICE.

THE medical examination of candidates for the Territorial Force is carried out principally by the medical officers of the units concerned. In the regular army all officers of the Royal Army Medical Corps on joining now pass through a course of instruction in recruiting duties, a procedure which is of the greatest value to the State. Medical men who have not had experience of the many slight defects or deformities which interfere with the soldier, and the advantages sometimes taken of these defects by him to avoid duty or to get his discharge by being invalided when he tires of army life, require special knowledge which can only be imparted by expert recruiting medical officers. The physical standards for recruits vary with the various arms concerned. In the regular army the minimum measurements for height and chest girth are those laid down for Infantry of the Line, Army Corps (except drivers), Royal Army Medical Corps, and Ordnance Corps (ordinary recruits). For these classes the minimum standards for men 5 feet 3 inches in height is a chest expansion of 33½ inches, provided its range of expansion is not less than 2 inches. The minimum age laid down for recruits is 18 years, but in certain units (Army Post Office Corps, certain sections of the Royal Engineers, and Army Ordnance Corps), and recruits enlisted to complete drafts or units proceeding abroad, the minimum age standard is fixed at 19 years. The majority of recruits (95 per cent.) are growing lads, and it is estimated that most of them will not be capable of doing the work of a mature soldier for about two years. The latest available statistics (1907) regarding recruits medically inspected in the United Kingdom for the regular army show that of 59,393 recruits inspected in that year, 16,906 were rejected on inspection and 607 were rejected as unfit within three months of enlistment, giving a total for rejections of 17,513 and ratios of rejections per 1000 inspected of 284·65, 10·22, and 294·87 respectively. The figures for the decade 1897 to 1906 are even higher. The most common causes of rejection per 1000 inspected in 1907 were: (*a*) under chest measurement, 49·72; (*b*) teeth, 48·17; (*c*) heart, 29·25; (*d*) vision, 24·06; (*e*) defects of lower extremities from fracture, contraction, luxation, &c., 17·04; (*f*) varicocele, 11·42; and (*g*) under height, 10·49. The chief defects causing discharge from the service within three months of enlistment for the same period per 1000 inspected were: (*a*) heart, 1·73; (*b*) nervous system, 0·93; (*c*) weakness of intellect, 0·86; (*d*) defects of lower extremities from fracture, contraction, luxation, &c., 0·74. These, the principal causes of rejection, are of the utmost importance to all Territorial recruiting medical officers as they indicate the deficiencies most to be looked for, and when we examine the invaliding figures of the regular army it may be noted that as regards the relative importance of the different causes of invaliding, diseases of the circulatory system hold first place. This has been attributed to various causes; in the case of valvular disease occurring within the first year of service to inefficient recruiting, and in the case of disordered action of the heart within the same period to the effects of military training. It may be mentioned that the so-called disordered action of the heart met with in the service is not necessarily always functional, but may be due to dilatation of the stomach. It is understood that investigations are being carried out on this subject by the military medical authorities. The six principal causes of invaliding from the army since 1880 have been diseases of the circulatory system, tubercle, diseases of the nervous or digestive system, rheumatism, and syphilis. A brief note on some of the principal causes of rejection or discharge may now be considered.

Diseases of the heart.—The heart is perhaps the most important organ to be examined in a candidate for enlistment. The greatest possible attention must be paid to organic lesions, also to functional affections of the heart, and men must be rejected if found suffering from any marked degrees of irregularity of cardiac action which do not tend to subside after a reasonable period of rest. The accepting of recruits with hæmic or temporary bruits, while not advisable in the regular army, should only be allowable with caution in the Territorial Force, and such recruits if passed must be warned of the dangers they risk on strenuous marches, field days, &c. The cigarette habit must not be lost sight of in its rôle as a causal factor of functional disordered action of the heart. With a view to help men to overcome the habit Territorial medical officers should advise their commanding officers to prohibit the smoking of cigarettes at certain times, when pipe-smoking would be made allowable instead.

Teeth.—Loss or decay of many teeth causes nearly 17 per cent. of the number of all rejections for the service if we exclude failure to attain the physical standard of size. The South African war caused a high standard to be laid down, but opinion is now held that the inefficiency attributed to defective teeth was then much over-rated, and that a great proportion of the dental troubles were due to scurvy from want of fresh food, meat, and vegetables, added to the prolonged duties in the field. In some cases the teeth of recruits may be brought up to the standard by dental treatment. The acceptance or rejection of a recruit on account of loss or decay of several teeth depends upon the relative positions of the sound teeth. Thus the loss of several contiguous molars on both sides interfering with efficient mastication, or, again, the loss of many teeth in a recruit of an indifferent constitution, would point to rejection. In the case of the Territorial recruit the standards laid down for the regular army as regards the teeth may be more elastic and the criterion of dental fitness should depend on the general nutrition of the candidate. Special attention should be paid, however, by Territorial medical officers to the question of pyorrhœa alveolaris which is not uncommon in young men. It is more commonly found on one side of the mouth associated with deposit of tartar and can be often remedied by application of peroxide of hydrogen. Its presence has such an important bearing on the general health that the condition should never be overlooked.

Varicocele.—This condition formerly used to be the cause of a fair number of rejections in recruiting, but latterly it is viewed with greater leniency. There is said to be a widespread belief that even a slight degree of varicocele is responsible for impotence, and the demand for operation may be attributed to this fact rather than to any pain or other trouble. But the question of varicocele is a complicated one.[2]

Flat feet.—Recruits who show by practical tests that the arches of the feet are strong may be accepted, although the feet may appear to be flat. The regulations as modified in 1907 were the means of passing about 500 men into the regular army in that year who would have been rejected under the former rules. The proof that such men became efficient soldiers is shown by the ratio for discharges under three months' service, which have since fallen.

Syphilis.—It is definitely laid down that men suffering from the constitutional form of this disease cannot be enlisted in the army. Men suffering from constitutional syphilis are extremely likely to break down under the strain of active service.

Selection of Men for Active Service.

Here the standards laid down must be much more rigorous.

[1] Nos. I., II., and III. were published in THE LANCET of July 31st and August 7th and 14th.

[2] See THE LANCET, Sept. 23rd, 1905, p. 923, and the important correspondence which followed on Colonel Frank Howard's communication.

In the mobilisation of troops for active service in the field, especially for a tropical campaign, the selection, not alone of the individual, but also of the unit, is of such vital importance as to be what we may almost term the key to the position of success. Many factors enter into the consideration of this question, of which the following are, perhaps, the more important. As previously recorded, any regiment or other unit that has been noted for its sanitary conservancy in barrack life in peace time may be relied on to carry such an attribute with it into the more severe test of active service, and *vice versâ*. For a regiment that is careless of its hygiene in peace may of a certainty be prophesied to fall to pieces with enteric fever or other fell dirt disease in war. The question also of units home from the tropics, shattered and decimated by malarial fevers or venereal disease, will always arise, and, if the individuals debilitated by these diseases be not thoroughly eliminated by strict medical examination prior to disembarcation, they will fill the hospitals on field service and paralyse any regiment from wastage. Such regiments will be a delusion and their strength a paper one, and as they will only reflect the utmost discredit on all concerned they should never on any occasion be allowed to take the field; it is far better for the officer in medical charge of such a unit strenuously to oppose any attempt for it to do other than garrison duty at home. Its officers and men who are "fit" should get opportunity for transfer to staff or other extra-regimental appointments as volunteers for the seat of war, so that disappointment need not ensue.

Passing next to examine the individual, it is, of course, impossible to lay down hard-and-fast rules suitable for all cases, as each must be judged on its own merits.

Age.—The short-service system initiated by Field-Marshal Viscount Wolseley, as is well known, gives us a larger proportion of young soldiers in the regular army than would otherwise be the case; so there is but little age choice when it comes to mobilising a large field force, even when taking into consideration the men of the Army Reserve. Lord Wolseley's views in respect of the value of young soldiers are well known and common property; he deems young non-commissioned officers also as important an essential as young recruits. The history of Napoleon's campaigns, and those of the other great continental Powers, as well as that of our own, all give overwhelming evidence of the fact that old and seasoned troops are much the best. From personal experience, and from the closest possible attention to this subject while attached to units which were invariably employed in the fighting lines during General Buller's handling of the Natal army in the general engagements at Spion Kop, Vaal Krantz, Colenso, Pieter's Hill, relief of Ladysmith, Laing's Nek and Belfast, as well as in many other engagements of lesser importance in Natal, Orange River Colony, and the Transvaal, in which there was a fair opportunity of estimating and reflecting on the value of the influence of age on the health and efficiency of the soldier of all types, from the recruit to the seasoned soldier and reserve man, of contrasting home-bred and colonial, regulars, irregulars, yeomanry, volunteers, and militia, the writer has no hesitation in stating that, from a purely medical point of view, it is less satisfactory to select men under 25 years of age for active service. They are more liable to break down in a protracted campaign from overstrain and fatigue, and to knock under to enteric fever, dysentery, or some other disease. From a military point of view, however, it may be conceded that more initiative in times of emergency was found among men of under 25 years than among the men of more mature age, such as belonged to the army reserve; perhaps this may in some part be due to the fact that the latter, having contracted home ties and settled down from army life, have to some extent become softer in muscle and more cautious of limb. Probably if we strike a mean between the age of the recruit and that of the army reserve man we have the right material for war as British soldiers, for such men should have all the advantages of seasoning and few, if any, of the susceptibilities.

It is hardly necessary to remind our readers that experience in war, and also in peace, has taught army surgeons the bearing that age has on the susceptibility of the soldier to enteric fever, the principal bugbear. Men between the ages of 20 and 25 are by far the most susceptible to this disease, as they have not yet matured. Examples of immaturity may be found in the bones of the skeleton, many of which are not wholly united; moreover, the heart, lungs, and viscera have not matured until the individual has attained his twenty-fifth year. The present short service system robs us of seasoned soldiers; by "seasoned" men is meant the survivorship of the fittest, that is, men with their weaker comrades weeded out by the effect of tropical service, not men who have had tropical diseases, such as malarial fevers or dysentery, as such individuals are especially predisposed to further attacks on the least exposure. The majority of our recruits under the present short service system are under 20 years of age; they do not remain sufficiently long at home, and are sent abroad before they are matured. Under the new, easy-going, and attractive surroundings of a foreign station, these men, one and all, at some period of their first few years' service, contract either venereal disease, malarial fever, or enteric, or perhaps a combination of these maladies, the result being that these diseases, after eliminating the weaker individuals, leave the best educated of the remainder to be promoted to the rank of non-commissioned officers, and these in turn are discharged from the service just as they reach the age and period of seasoned soldiers. One has only to take the medical history sheets of a regiment *en bloc* and go carefully through them when the truth of these statements will be apparent. In Lord Roberts's great march from Cabul to Kandahar the effect of age and seasoning in soldiers was well brought out; all the regiments engaged marched well and improved daily, all except the 72nd; on inquiry it was found that the marching power of only a limited section of this regiment was affected, and that the companies affected were made up of newly arrived drafts of young men. In Natal the writer noticed very much the same sort of thing. During General Buller's forced marches from Ladysmith and Elandslaagte to Laing's Nek, *viâ* Helpmakaar, Dundee, and Newcastle, the Light Infantry Brigade, which acted as advanced guard to the main army, covered distances varying between 20 and 25 miles daily; the troops were all seasoned, save for drafts and volunteer companies that had come out from England, and when men fell out they were invariably found to be recent arrivals. On the other hand, the Lancashire Brigade, to which the writer was for some time attached, were second to none as a fighting unit, but were notoriously slow marchers, chiefly owing to the large number of reservists they counted in their ranks. Sir Thomas Crawford, a former director-general of the Army Medical Department, fixed the low limit of suitable age for active service at 23 years. The Army Sanitary Commission, in reference to Indian trooping, advised that no one under 25 years should be sent to India. The French Foreign Legion in Algeria is composed of only seasoned troops. These, and many other instances, all point to the fact that there can be no possible doubt that 25 is the age we must circle round, preferably over 25, as the most suitable for campaigning in the tropics.

Previous medical history and its bearing on selection for active service.—In the medical examination of the men of a regiment detailed for active service the medical history sheets of each individual must be carefully scanned while they are subject to examination. All cases with lengthy hospital admissions for venereal disease or malarial fever must be particularly gone into, and, *as a rule*, should be rejected as unfit, as the efficiency of a field force depends on the efficiency of the men composing it, and there are no diseases more prone to return or induce debility from functional disturbances of the heart and circulation than malarial or venereal affections. Cachectic and anæmic men, with past histories of malarial fever, should invariably, for this reason, be rejected, as they will break down in the first few weeks of any campaign. In the very first march the Lancashire Brigade made in South Africa, from Chieveley to Frere, a good example of this came to notice. The brigade started from Chieveley at 3 A.M., before dawn, and amid torrents of rain, over tracks covered with mud and slush; it marched until 5 P.M. in the afternoon. Most of the troops had no great coats, having left them in the waggons. The waggons of the Brigade Field Ambulance were filled to their fullest extent, the majority of the patients being reservists, in whom the quiescent germs of malaria had been called again into activity by the cold and rain. They presented a pitiable spectacle as they lay, cold and shivering, wrapped up in the Government blankets provided by regulation in every ambulance's equipment. All these cases had to be admitted to hospital on arrival at

Frere, and all had more or less lengthy histories of previous attacks of malarial fever; these men had only been in the country a week, and were useless as soldiers for active service. Many of them had to be invalided at once. Venereal disease is another most important factor to take into consideration while estimating the value of men for active service. Needless to state, no case of primary sore or gonorrhœa should be allowed to embark, as even for prophylaxis sake every channel of origin of any infectious disease must be eliminated from the country which troops propose to fight in. During the physical examinations as to fitness this matter will naturally have to be attended to by the medical officer. He should also form some estimate from the man's medical history sheet as to his previous admissions to hospital for venereal disease, and reject all cases of syphilitic cachexia, anæmia, and chronic orchitis, as such cases invariably break down.

Physical examination.—Having glanced over the medical history sheets to estimate the two diseases, malarial fever and venereal disease, and having eliminated entries for any other serious disease, the medical officer can pass on to the physical examination of the man himself. This examination must be as thorough as time will allow. The system the writer has adopted on occasions where he has not had the advantage of the assistance of a brother officer, and where time and the exigencies of the service did not permit of what should, perhaps, have been a more careful examination, was as follows. A company was paraded at a certain hour. The colour-sergeant of the same handed the writer a nominal roll, giving the men's names, numbers, and initials, and also their medical history sheets, arranged in the same order as they appeared on the roll. The men were marched into the room (as large a one as possible is advisable) in batches of ten; each man had nothing on but his shirt and overalls. The men were arranged in file at wide intervals. The front row took off their shirts, and as each man's turn came for examination he let fall his overalls, so that the entire body was seen in turn. Special attention was paid to the detection of discharges from ears, to blepharitis, teeth, heart, rupture, venereal disease, varicocele, varicose veins, deformities of feet, and piles. In examining for rupture each man's abdominal rings were examined, and he was made to stand on tiptoe and cough; and for condylomata and piles to stoop and touch his toes. To avoid personation the company colour-sergeant stood by, and each man was asked either his number, initial, or place of enlistment, or some other question from his medical history sheet; his power of hearing also was estimated by this question.

The degree of any of the above-mentioned defects that can be passed must lie with the individual discretion of the examining medical officer. No case of perforation of the membrana tympani ought to be sent on service; cold and exposure only aggravate it, and its danger to life will be increased. This disease is particularly common amongst the Royal Artillery, and especially the Royal Garrison Artillery; in the Royal Artillery it is usually caused by duty; in other branches of the service it is usually the result of carelessness in drying the ears after a plunge-bath or washing.

Blepharitis is an eye trouble very prone to increase and lead to conjunctivitis on service, especially in dusty or sandy tropics; if this disease is at all markedly present, or if there is absence of many eyelashes, such a soldier ought not to be allowed to go on service. The question of teeth is a more difficult one, and when on service really depends on the keenness of the individual for soldiering, for the writer has seen men in a campaign get along in perfect health with a most limited supply of teeth, and others readily go sick on the smallest excuse and proclaim their inability to eat field rations. As a rule, no man without a good bite of at least four opposing molars should be passed, and all signs of caries with suppurating fangs ought to be rejected. Too much weight need not be attached to carious incisors. The question of artificial teeth is doubtful, and the writer would be disinclined to reject a candidate if otherwise satisfactory; but we must always be suspicious of the worth of such individuals, as they have only to lose their plates to claim exemption from all duties. Non-commissioned officers, as a rule, should be passed at a lower standard as regards teeth than privates. Each and every candidate with any form of cardiac murmur must naturally be rejected at once, and the same rule will hold good in organic disease of the lungs or other viscera.

Venereal disease has already been dealt with and the rules laid down should be rigidly enforced. No case of rupture, however slight, should be passed, as the tendency to increase is always present. Rupture cases wearing trusses should also be rejected, as carrying stones for entrenchments will bring on a relapse. Mild cases of varicocele and varicose veins cannot be stopped, as such a large proportion of men have them; cases of piles, on the other hand, should not be allowed on service, as the condition will never tend to improve but rather to get worse. With regard to feet troubles, no marked cases of bunion, hammer-toe, or flat-foot should be passed, as marching is of cardinal importance, and if men have any excuse in the shape of deformity of toes they will continually fall out on the march and fill the ambulance wagons.

Finally, on mobilisation the following should hold good: 1. It is imperative that the medical officer in charge of a unit in peace time should be detailed to examine this unit individually as to fitness for field service, and that this examination be carried out in a most thorough fashion. In the Boer war many were sent out who were utterly unfit for war service. 2. The medical officer in charge of a unit in peace time and no other should invariably be detailed to accompany it in war; he will thus know the health of its officers and men, and such experience is invaluable. 3. On mobilisation the bandsmen of the regiment should be handed over entire to the medical officer for special training in first aid and sanitation.

(To be continued.)

CHOLERA, PLAGUE, AND OTHER DISEASES IN RUSSIA AND THE NEAR EAST.

(FROM THE BRITISH DELEGATE ON THE CONSTANTINOPLE BOARD OF HEALTH.)

The Cholera Epidemic in Russia.

THE following figures are in continuation of those furnished in my last letter (THE LANCET, July 24th, p. 259):—

Between June 14th and June 20th	...	664	cases,	234	deaths.
,, ,, 20th ,, ,, 27th	...	880	,,	365	,,
,, ,, 28th ,, July 4th	...	1130	,,	481	,,
,, July 5th ,, ,, 11th	...	858	,,	384	,,

(All the dates are according to the Old Style.)

In the first of these four weeks the disease was confined to the towns of St. Petersburg and Riga and the governments of St. Petersburg, Archangel, and Novgorod. In the second there were added to these the governments of Vologda, Pskof, Yaroslavl, Riazan, and Olonetz. In the third, in addition to most of the governments already mentioned, cholera had appeared in those of Vilna, Courland, Livonia, Moscow, Viatka, Vitebsk, Simbirsk, and Finland. Finally, in the fourth week, the names of three governments—those of Estland, Tver, and Kostroma—and the town of Cronstadt appear for the first time in the list. By far the larger part of the totals in each week refers to the outbreak in St. Petersburg. Elsewhere only the governments of Archangel, Vologda, Novgorod, and Riazan have furnished a number of cases running into double figures in any one week. In many of the other towns and governments named only single isolated cases imported from St. Petersburg have been seen. It will be observed that in the last week in the list the numbers have begun to decrease; but it would, perhaps, be premature to conclude from that that the worst of the epidemic is over. We have only now reached the season in which, in each of the last two years, the cholera epidemic in Russia has begun its ravages. The infection may yet spread to the valley of the Volga and the south of Russia, in which event considerably higher totals than those above quoted may be expected to figure in the weekly returns.

The *Russki Vratch* states that the epidemic in St. Petersburg is spread over the whole city, showing that probably it is due to one cause common to all parts of the capital; and this supposition is confirmed by the fresh demonstration of the presence in large numbers of cholera vibrios in the water of the Neva. A Commission has been appointed by the Russian Government to deal with the question of the St. Petersburg water-supply and drainage schemes. The composition of this

Commission will be as follows: a President, appointed by the Tsar; a certain number of members, appointed by the Senate; six members named for three years by the St. Petersburg town council; two members chosen for the same period by the *zemstvo* of the St. Petersburg government; and not more than four members named by the Tsar. The example of England is quoted where the cholera outbreaks that occurred between 1846 and 1860 led to the inauguration of those great public health measures and legislation which have produced such brilliant results in the last few decades of the nineteenth century.

The execution of the new scheme of water-supply in the Russian capital will require some 15 years for its completion. In the meantime, in order to deal with the existing outbreak of cholera, "first aid" stations have been opened in 17 different parts of the city; 42 disinfecting stations have also been established, of which 30 are situated in the central part of the town and 12 on the river. At each of these stations there is a medical officer, a disinfector, and a number of subordinate employés. In order to ensure an effective result not more than six separate operations of disinfection are permitted at each station in the course of 12 hours.

Cholera Cases in Germany and Austria-Hungary.

A single case of cholera occurred in Königsberg on July 20th. The patient had arrived from Russia. Death occurred on the following day. The diagnosis of cholera was confirmed by bacteriological examination. News has also been received of a suspicious case of the disease at Lemberg, in Galicia, but details are wanting.

Plague in Adalia.

The first case here occurred (as stated in my last letter) on July 2nd. On the 12th another case was reported; the patient was a little girl, aged eight years, living in the Djami Atik quarter of the town; she apparently recovered. On July 19th, in the Yaniklik quarter, a third case was seen; the patient was a shoemaker, aged 16 years; he had been ill for four days; he died on the 23rd. Then on the 29th news was received of the following incident. An inhabitant of Adalia, a man, aged 35 years, left the town on the 27th, intending to drive to a place called Stanos, 60 kilometres from Adalia. He had been ill for some days before he started. After driving some 50 kilometres he died on the road. The municipal doctor, who happened to be in the neighbourhood, examined the body and pronounced that death was due to bubonic plague. On July 28th yet another case had been seen in Adalia itself; the patient was a boy, aged 14 years; he died on the 30th. There have thus been up to the present five cases of plague, with three deaths, in or near Adalia.

Cerebro-spinal Meningitis in Arabia.

Within the last year or two epidemic cerebro-spinal meningitis has been showing unusual activity in many parts of the world. News has recently been received here of its appearance, in apparently a very fatal form, in a quite unexpected and little known country. Owing to the presence of plague in endemic form in the Assyr province of Arabia (situated between the Hedjaz on the north and the Yemen on the south) a sanitary officer in the service of the Constaninople Board of Health is permanently stationed at Ep-ha in that province. In June this official was requested by the Vali of Assyr to visit certain villages in the neighbourhood of Mihail, in the interior of the province, and report upon a very fatal outbreak of disease which had appeared there. In the first villages visited (those of Ma'ash, El-Daris, Mansab, Al-Fahma, and Ennus'b) no cases were seen, but in each there had been a heavy mortality from a disease which had in most instances caused death in 24 hours, or at most in a few days. The cemeteries showed, by the number of new graves, how high the mortality had been. In the next district visited, that of Al-Mohsin, nothing was seen but two cases of typhoid fever. Further travel in these regions was not without danger, but with the aid of Sheikh Faïz-bin-Nouh, a sheikh much venerated in those regions, it became possible to visit several villages in the districts of El-Hadjif and Tayal-Marwa. Here, in each village "and almost in every hut," patients were found, suffering from an acute disease which is said to have resembled in every way the epidemic form of cerebro-spinal meningitis. There were in each case high fever, accompanied with vomiting, excruciating headache and backache, contracture of the limbs, delirium, torpor, coma, and then death after a day's illness. The strongest and healthiest individuals did not escape; they were suddenly struck down (writes the author of this excellent report), crying, "Oh! my head!" or "Oh! my back! I have been shot in the back." The disease had apparently spread slowly in each village, and from one village to another. The district first affected had been that of Al-Fahma, then that of Al-Mohsin, and then that of Al-Hadjif. Although the population is extremely sparse—less than one person per square kilometre—the epidemic is said to have been "*une des plus terribles et ravageantes*," as shown by the new graves in all the cemeteries. While still in these regions news was received of the appearance of the disease in the Al-Machwal district, and on visiting the villages in this district several of the first cases were seen; the symptoms were identical with those already described. It is noteworthy that both here and in the earlier villages visited an epidemic of enteric fever was prevalent at the same time as that of cerebro-spinal meningitis. Nothing was seen or heard of the prevalence of plague in any of the villages visited; but the tour did not extend to the country of the Beni Sheir, where the centres of endemic plague exist (or used to exist). That tribe or group of tribes was in active rebellion against the governing authorities, and it was impossible, without great risk, to penetrate to their settlements.

Constantinople, August 6th.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

The University of Bristol.

THE appointment of Dr. J. Michell Clarke to be the first Pro-Vice-Chancellor of the University of Bristol, which was briefly announced in my last letter, demands fuller notice than was possible at that time. The Faculty of Medicine is justly proud of the honour done to one of their number, and it is generally agreed that the office could not be better filled. Dr. Michell Clarke has given an immense amount of time and pains during the past 25 years to the establishment and expansion of medical teaching in Bristol. He has taught medicine in the wards of the General Hospital for many years, and lately as professor of medicine at University College; and until it was found possible to appoint a whole-time professor of pathology, he held this office and taught pathology with conspicuous success. Prior to this he was lecturer on practical physiology, so that he has a very complete personal experience of the medical curriculum. Beyond this, he has taken a leading part in the heavy work of administration which has been necessary during the evolution of the University.—Lord Rosebery, as Chancellor of the University of London, has appointed Sir Arthur W. Rücker, M.A., D.Sc., LL.D., F.R.S., to be his representative on the Court of the University of Bristol for a period of seven years.—The education committee of the Bristol city council has had a surprise in the shape of an application from the authorities of the University for the payment of the sum voted by the council several months ago. This sum is about £7000, the proceeds of a penny rate, £3000 of which are earmarked for a scheme of scholarships, £4000 remaining for the general maintenance fund. The application was not expected yet, but the University development was rapid in its final stages, and the first session will begin on Oct. 1st. It is not likely that all the regulations will have taken shape sufficiently for use by that date, but such as are complete will presumably come into force then. Under the circumstances the education committee agrees to provide £2000 (half the general fund) in December, the special £3000 waiting till the scholarship scheme is ready.

Bristol Royal Infirmary.

At the half-yearly meeting of the governors of the infirmary held on July 27th, Sir George White, the President, gave a brief account of the financial position during the first half of 1909. Comparing the figures with the same half of 1908, the total receipts were £8142, as against £8420 the preceding year; the ordinary expenditure was £8578, compared with £8457. Extraordinary expenditure to the extent of £948 was incurred in the starting of the nurses' training school and other items, leaving a balance due to the

treasurer of £1384. This makes an adverse balance of nearly £5000 accumulated during the last three years. Mr. Francis Tagart and Mr. Samuel White have each promised £1000 towards the extinction of this debt, and other promises amounting to £457 have also been received. The most hopeful feature of the financial outlook is the increase by £217 of the sum total of regular subscriptions. Legacies were productive of £1173, as against £92. Sir George White concluded with an appeal to the public for more adequate support, a statement of the work of the institution during the past half-year (1781 in-patients and 20,587 out-patients, as compared with 1747 and 20,227 in the corresponding half of 1908), and a brief reference to the building scheme. This has progressed as far as the demolition of the houses which occupied the site to be devoted to the projected new premises, the detailed specifications for which are being prepared. Building tenders will be asked for in a few months. After the general meeting a special meeting was held to elect Mr. G. Munro Smith consulting surgeon on his resignation of the post of surgeon. The President, Dr. R. Shingleton Smith, and Mr. J. Paul Bush all expressed the general regret felt by the committee and staff at the retirement of such a popular and devoted officer, and Mr. Munro Smith replied. Mr. H. F. Mole, who has for some years been assistant surgeon, was elected to the full staff, and Mr. C. F. Walters, surgical registrar to the infirmary, was elected assistant surgeon.

Death of Mr. Edward Benjamin Steele-Perkins, L.S.A. Lond.

Mr. E. B. Steele-Perkins, who died at his residence, Wilton-place, Exeter, on July 30th, in his sixty-eighth year, was a member of an old Exeter family. He received his medical education at Charing Cross Hospital, and after qualifying in 1876 joined his father in practice at Exeter. For nearly 40 years he was a familiar figure in that city, and his geniality won him many friends. He was keenly interested in the Volunteer movement and for many years held a captaincy in the 1st Devon Artillery Volunteers, retiring about ten years ago with the honorary rank of major. His father, the late Dr. John Steele-Perkins, was one of the earliest Volunteers in the country. Mr. Steele-Perkins had a large practice in Exeter, he was honorary surgeon to the Devon and Exeter Home of Refuge, and also medical examiner for the Royal Navy and Royal Marines. He was a "freeman" of the city of Exeter, for many years represented St. Sidwell's ward in the city council, and was held in high respect. He leaves a widow and two daughters.

Public Health in Honiton District.

At a recent meeting of the Honiton (Devon) rural district council a letter was read from Mr. F. R. S. Cosens, the secretary of the Honiton and Axminster Unions Medical Association, stating that at a meeting of the medical men of the Honiton and Axminster unions a resolution was passed urging the provision of an isolation hospital for the Honiton urban and rural, Sidmouth urban, Ottery St. Mary urban, and Axminster rural district councils, and favouring the appointment of a medical officer of health for the district, who should also be superintendent of the hospital and devote all his time to public health work.

The Pearn Convalescent Home, near Plymouth.

The annual meeting of the subscribers of this institution was held recently under the Presidency of Vice-Admiral J. E. Maitland Wilson. The medical report stated that during 1908 the patients admitted numbered 496, compared with 491 in 1907. 307 patients were admitted from the South Devon and East Cornwall Hospital, 172 from the Royal Albert Hospital, Devonport, and 17 from the Plymouth Eye Infirmary. 61 nurses from these hospitals were also received during the year. The expenditure for the year was £1123, the average cost of each patient being 2*s.* 6*d.* per day.

The Totnes Cottage Hospital.

At the annual meeting of the subscribers of the Totnes (Devon) Cottage Hospital the following members of the honorary medical staff, whose term of office had expired, were re-elected: Dr. K. R. Smith, Dr. G. J. Gibson, Dr. W. R. Edmond, Dr. W. Chapman, and Mr. H. S. Johnson.

The Tour of the "E. M. I."

The party of foreign medical men who have been touring England under the auspices of the "Enseignement Médico-Mutuel Internationale" arrived at Bristol on August 15th under the guidance of Dr. Etienne Bazot of Paris. They visited the Royal Infirmary and were conducted through that institution by members of the honorary staff. They then drove on to the General Hospital where they were received by the president, Mr. J. Storrs Fry, the matron, and several members of the visiting staff. They went all over the institution and expressed their admiration of the wards, the operating theatres, and the nurses' home. After lunch at the Royal Hotel, to which representatives of the two staffs were invited, they made a tour of Clifton which included the Zoological Gardens, and were finally entertained at the houses of several medical men who had conducted them over the institutions in the morning.

August 17th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Infant Visitation in Glasgow.

UNDER the scheme of visitation of the Public Health Department in Glasgow an inspector calls at every house where a birth has occurred. Under this arrangement 12,954 inquiry cards were issued to the female inspectors during the year. Of these, however, 273 proved to be duplicates of previous notifications, and 1247 were not visited for various reasons. Of the others, 200 were not found at the addresses given, while 737 more had medical men in attendance. There thus remained 10,497 children not medically attended at birth who received at least one official visit after notification. It is worthy of note that of the children found alive on the occasion of the first visit no less than 96 per cent. had the advantage of breast-feeding in the early weeks of life. In this respect much help has been given by the Glasgow Infant Health Visitors' Association. Of this association there are now 15 different branches supplying voluntary visitors to the number of 300, who undertake visitation in 19 wards or districts of wards. While the visitors are untrained in public health work, and no standard of training can be insisted on beyond a familiarity with the requirements of district visitation, there is every reason to believe that the influence of an educated and sympathetic visitor cannot fail to operate for good in the homes of the poor. Information regarding the cases to be visited is sent by the health office to the secretaries of the various branches of the association, and they in turn are responsible for returning reports to the health office at the end of each month. The cards forwarded from the health office at present consist of a yellow card which is sent for information, and a small white card which is for the visitor's monthly report. The yellow cards may be retained by the secretary or distributed amongst the visitors as she thinks best, but in any case they are only for information, and are returned to the health office when the babies pass from under observation. The complete record of each baby thus consists of the yellow card and 12 white ones, and these are all returned to the health office immediately the baby has completed his twelfth month.

Greenock and Phthisis Cases.

In a report to the Greenock corporation the medical officer of health for the burgh states that even 12 beds in the Combination Hospital would enable the health authorities to institute a definite campaign against phthisis. The cost is estimated at £620. It is proposed to establish a dispensary, the upkeep of which would probably not exceed £100 per annum.

Large Donation to Dundee Royal Infirmary.

At a meeting of the directors of the Dundee Royal Infirmary held on August 12th Mr. George Duncan, one of the directors, read a letter from Miss Duncan of Drumforte, intimating a donation of £4200 to the funds of the infirmary for the purpose of endowing two beds in memory of, and to be named after, Miss Duncan's late brothers, Mr. James Duncan of Drumforte and Indanstone, and Mr. George Duncan, banker, Alyth; and two cots in the children's ward, one to be named after her late sister, Miss Marjory Duncan, and the other to be named after herself, preference to be given to patients from Alyth and Blackwater districts. On the motion of the chairman, the directors resolved to record their cordial thanks for the generous gift, coming as it did at a time when claims and heavy calls were being made upon the

resources of the institution, and the secretary was instructed to transmit an excerpt of the minute to Miss Duncan.

A Modification of the Montrose Asylum Charter.

The managers of Montrose Royal Asylum and Infirmary met at Montrose on August 10th and agreed to the following modifications upon their charter, consequent upon the claim for representation made by the parish councils of Forfarshire and Kincardineshire: The whole rights and privileges of present members are to be conserved; the new board is to consist of 35 instead of 50 members; the respective numbers of the inhabitants of burgh and the landed proprietors specified in the new charter to be reached through deaths or resignation in the present membership of these two classes; parish ministers *ex-officio* to continue members of the board until death, resignation, or removal from the parishes; the provost of Montrose, or, in his absence, the first baillie, to be chairman, or, in the absence of both, a chairman to be chosen by the meeting; the chairman to have a casting as well as a deliberative vote. The constitution of the new board will be as follows: The provost of Montrose (*ex-officio*), the first baillie of Montrose (*ex-officio*), male inhabitants of the burgh and parish of Montrose, 15; landed proprietors of Forfarshire, 3; landed proprietors of Kincardineshire, 2; district lunacy board of Forfarshire, 1; district lunacy board of Kincardineshire, 1; provosts of Arbroath, Brechin, Forfar, and Stonehaven, 4; representatives of parish councils from Forfarshire, 3; representatives from parish councils of Kincardineshire, 2; representatives for counties of Shetland and Caithness, 2. The representatives of Shetland and Caithness will be elected by county councils, who will have power to choose their representatives outside of their own councils. The infirmary board is to consist of the first five classes—22 and not exceeding 12 cöopted members—the latter to consist of members to be elected from societies, congregations, public works, firms, or individuals who shall annually subscribe to the institution a sum to be fixed or contribute a fixed capital sum. The various clauses of the new charter were discussed and voted on separately. The proposed new charter will now be printed and forwarded to the General Board of Lunacy for approval.

Elginshire Secondary Education Committee: Medical Inspection of School Children.

A meeting of the Secondary Education Committee of the county of Elgin was held in the Burgh Court House on August 7th. The clerk intimated that following upon what had occurred at the recent conference at Forres he had written to the department with regard to the medical inspection of school children. He had now received a reply in which the department stated that it expected the committee to include in the estimate of expenditure a tentative sum for a medical inspector's salary and to frame and submit to the department at an early date a scheme for the medical inspection of school children. It also desired the committee to give careful attention to the circular recently sent to it on the subject. In the course of the discussion which followed the chairman said that the best opinion the committee had was that of the medical gentlemen themselves, and they were of opinion that the medical inspection would not be efficient unless there was a man specially appointed for that purpose. It was highly creditable to them that they had taken that view, as it was not to their own advantage. It was ultimately agreed to hold a meeting at an early date to adjust a scheme for submission to the department.

August 17th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Dublin Visit of the "Enseignement Médico-Mutuel Internationale."

ONE of the interesting professional events of the past week was the arrival of a party of French medical tourists belonging to the body known to many of your readers as the "E. M. I." They arrived in Dublin on August 12th and proceeded to make a round of visits to the medical schools and hospitals under the guidance of Sir Charles Alexander Cameron, chief medical officer of health of the city, Sir William Thompson, to whom the development and progress of the anti-tuberculosis crusade have been so largely due, and other prominent medical men. At the Royal College of Physicians they were specially interested in the portraits of Graves, Stokes, and Corrigan, with whose works many of the visitors were acquainted, and who, they were good enough to say, made the Dublin School of Medicine the most prominent in the world about the middle of the last century. On passing into Trinity College they were conducted through the medical school (and museums) and the College library by Professor A. F. Dixon, Professor M. S. MacIntosh, Professor E. H. Taylor, and Professor W. H. Thompson. After being photographed they proceeded to the Royal College of Surgeons, where they were received by the President, Mr. John Lentaigne, and a number of other surgeons. They were entertained at luncheon at the London and North-Western Hotel, and took tea at the Viceregal Lodge. They subsequently visited the Zoological Gardens, and the programme of the day's entertainment was rounded off by a dinner in the banqueting hall of the Royal College of Surgeons, at which Mr. Lentaigne (himself sprung from a distinguished French stock) appropriately occupied the chair. Several other of the leading representatives (and after-dinner speakers) of the profession were present, including Dr. Joseph M. Redmond and Sir Lambert Hepenstal Ormsby. The guests included Professor Colville (Rheims), Dr. Aubry (Paris), Dr. Algret (La Chatre), Dr. Louis Chemery (Paris), Dr. Demieville (Lausanne), Dr. François (Andenarde, Belgium), Dr. Duran (St. Gaurens), Dr. Lefevre (Seine-et-Oise), Dr. Levy-Klotz (Paris), Dr. Breton (Oran), Dr. Hounmel (Vosges), Professor Pouchin (Rouen), Dr. de Geynst (Belgium), Dr. Guyot (Switzerland), Dr. Hernandez (Spain), Dr. Manara (Italy), Professor La Torre (Rome), and M. Etienne Bazot (Director de l'Enseignement Médico-Mutuel Internationale). On the following day they visited the Pasteur Milk Depôt and the Rotunda Hospital before leaving by the midday boat for Holyhead.

The August Heat-wave: Heat-strokes and Drowning.

The almost tropical heat lately experienced has been answerable for the production of a fair number of cases of heat-stroke in various parts of the country, but the number was not conspicuously high. But indirectly the hot weather has been responsible for a startling record in the way of drowning fatalities amongst bathers in all quarters of the country, for everybody who has been able to immerse himself or herself in the water has been doing so. Indeed, the heat has had the effect of reviving something of the national spirit of the Donnybrook days—in the trouble which midnight divers into the refreshing waters of the canal have been giving to the members of the Dublin police force. The saddest of all the bathing fatalities occurred at the Great Blasket Island, off the coast of Kerry, on August 13th, when Miss Eileen Nicolls, M.A. Dub., was drowned in a splendid attempt to save the life of a native girl from the same fate. The latter (Miss Kate Crohan) had been receiving some swimming lessons from Miss Nicolls, and was ultimately rescued by one of the natives, while her brother and Miss Nicolls both perished. Miss Nicolls had a brilliant career as a student and was devoted to Irish literature. It was but last year that she obtained her degree of M.A. R.U.I., with first place, first-class honours, and a £300 scholarship.

A Carnival of Health for the Children of Cork.

On August 10th a poor children's excursion was provided by the philanthropic citizens of Cork, in accordance with a custom instituted in 1893. The number who enjoy this summer holiday has increased each year, so that on its recent occasion over 5000 happy children were emancipated from the streets of Cork to enjoy a few crowded hours of glorious life on the beautiful strand of the bay, where stands the historic town of Youghal. All of them had a dip in the sea; a few bathing accidents—mostly cuts and wrenches of feet and ankles—and a single case of insolation received the kindly attention of Dr. D. J. O'Mahony. A peep at the house and garden of Sir Walter Raleigh was one of the features of the holiday, for tradition makes that enclosure the locus of the first cultivation of the potato and the first smoking of tobacco in the Emerald Isle.

The Notification of Tuberculosis.

The public health committee of Belfast, finding that the

supposed difficulties raised by them as to the working of the Tuberculosis Prevention (Ireland) Act were removed by a letter from the Local Government Board, have adopted Part I. (compulsory notification) of the Act.

Inspector of Emigrants.

Dr. William Gibson, J.P., has been appointed by the Marine Department of the Board of Trade sanitary surveyor and medical inspector of emigrant ships at Belfast, a post held by Professor Thomas Sinclair until the beginning of this month. The duties of the surveyor are to inspect the passengers and crews of all emigrant ships sailing from Belfast under the provisions of the Merchant Shipping Act, and to issue certificates regarding them.

The University of Belfast.

Mr. W. Gibson of 112, Regent-street, London, has intimated his intention of presenting a silver mace to the University for use "worthy of a University destined, I trust, for many a century to come, to be the means of diffusing the highest knowledge through our beloved North of Ireland."

August 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Preservation of Dried Medicinal Plants.

THE preservation of the active properties of dried medicinal plants formed the subject of a communication by M. Perrot and M. Goris which was commented on by M. Guignard at a meeting of the Academy of Medicine held on July 27th. After referring to the well-known fact that the majority of such plants lost a considerable portion of their active properties when they were no longer in the fresh state, the communication went on to state that the changes which they underwent on drying were due to ferments which always existed abundantly in plants. If, however, the fresh plants were sterilised by exposure in an autoclave to the vapour of alcohol or any other liquid boiling below 100° C. the ferments were killed and the active principles were preserved without any tendency to eventual deterioration.

Accidental Disclosure of Examination Questions.

At the School of Medicine in Brest, which is an *école annexe*, a competitive examination is held for admission to the *école supérieure* at Bordeaux. At the last examination, when the president opened the ministerial envelope, which ought to have contained only the first day's questions, he found that by an inadvertence it included the questions for the other two days as well. At the end of the first day's work the candidates handed an energetic protest to the president, who reported the incident to the Minister, and the latter requested the Maritime Prefect to adjourn the competition.

Invariious Prescribing of Active Medicines.

One of the Paris courts of justice—the Parquet of the Seine—has received anonymous information of certain facts contained in a confidential communication made to the Society of Legal Medicine. This communication had reference to errors in prescribing habitually committed by a certain medical man in Paris—errors which might have caused the death of two children under his care. The circumstances must have been disclosed by a medical man who was called in consultation to see two sick children, and who found that they presented symptoms of poisoning. This gentleman, on examining the prescriptions written by the practitioner who had been previously in attendance on the little patients, saw that an excessive dose of digitalis was ordered in one of them and an unusual dose of opium in the other. The pharmaceutical chemist who dispensed the medicines said in reply to questions that this practitioner was in the constant habit of prescribing in that way, and that when he (the chemist) had to dispense one of this gentleman's prescriptions he felt so uneasy as to the possible effect on the patients that he always reduced the prescribed doses by two-thirds and sometimes by three-fourths. These facts have received attention from the Parquet and an inquiry has been ordered with a view to ascertaining the name of the medical man in question.

Milk Production in France.

Some interesting particulars relative to the commercial production of milk were mentioned by M. Martel at a meeting of the Academy of Medicine held on July 13th. M. Martel, who is the chief of the sanitary service of the City of Paris, said that the questions involved were very serious, especially in connexion with the feeding of infants. Almost everywhere it was difficult in the trade supplies to find milk which was really suitable for infants. The mixed milk (*lait de ramassage*) brought from the country had no sanitary guarantee whatever. In order to procure pure milk suitable for infants there must be strict sanitary supervision at the place of production. In the cow-houses in and about Paris the feeding of the animals was often ill understood and their milk suffered in consequence. In 56 per cent. of these places brewers' or distillers' grains (*drèches*) were used for the cows. Around the great distilleries of Argenteuil and Maison-Alfort where alcohol was manufactured from grain the milch cows were sometimes given very large quantities of mash made from the spent grains. In 51 cow-houses containing 1401 cows the quantity of mash given to each of them amounted to 60, 80, and even 100 litres. It often happened that the cows received no other drink. This system of feeding increased the yield of milk at the expense of its quality. Among 138 cows fed on mash made with brewers' grains 47 (i.e., 34 per cent.) were tuberculous, but the proportion of tubercle was less where grains were not given. Cows fed on grains were liable to diarrhœa. The repulsive smell encountered on entering the cow-houses and the dirty state of the hind-quarters and teats of the animals were not favourable to the production of good milk. Analysis showed that when a large quantity, such as 100 litres, of grain mash was given the specific gravity of the milk might be lowered and the dry residue free from fat was proportionately reduced. In consequence both of these facts and of the ill-effects produced on children and sick persons by the use of unwholesome milk it was desirable, as M. Martel had urged at the Fourth Congress on Milk held at Budapest, that the various names of "pure milk," "hygienic milk," "milk for infants," and the like should not be given to the milk of cows fed on brewers' or distillers' grains.

Statistics concerning Medical Men in France.

In 1901 there were in France 15,907 doctors of medicine and 1201 health officers (in all, 17,108 medical men), and 13,249 pharmacists. The last five-yearly returns, issued in 1906, showed 18,211 doctors of medicine and 928 health officers (altogether 19,139 qualified medical practitioners), and 11,105 pharmacists. The diploma of health officer was not given after 1892. During the decennium ending 1907 the various faculties of medicine admitted each year about 1100 French and foreign students to the doctorate, but in 1908 this number fell to 963.

August 17th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Canadian Medical Association.

THE forty-second annual meeting of the Canadian Medical Association will be held in Winnipeg, Man., on August 23rd, 24th, and 25th, just prior to the meeting of the British Association. This meeting promises to be one of the most important in the history of the national medical body. A fine scientific programme has been prepared and distributed throughout Canada. The question of the establishment of an official medical journal for the Association is expected to be finally settled. The provinces are gradually falling into line as regards the affiliation of their medical societies with the Canadian Medical Association; and there will be brought up and revived the question of inter-provincial registration. This latter has been, or was, a theme of the Association for many years, until it was placed in the hands of Dr. Roddick of Montreal, who was successful in having placed the Canada Medical Act on the statute books, which Act remains negative until the respective provinces pass the necessary ratifying legislation.—The annual meeting of the Canadian Medical Protective Association, which was organised just eight years ago when the parent body last met in Winnipeg, will also hold its annual meeting. This has proved a very prosperous and successful society, as

since its inception not a single case it has undertaken to defend has been lost, and the finances have been administered so faithfully that to-day there are several thousand dollars to the good of the society.—Another important meeting also will be the meeting of the Milk Commission of the Canadian Medical Association. During the past year this Commission has done a great deal of work, not all of an educative character. It is now proposed to form subcommittees in all the places of importance in Canada and to push along the campaign for clean milk. The Commission also advocates the pasteurisation of clean milk, and the success it is attaining is seen in the fact that the Hospital for Sick Children, Toronto, is establishing a pasteurisation plant, and two large dairies are adopting a similar course.

A French Decoration for a Surgeon of Montreal.

Dr. J. N. Roy, Montreal, has recently received from the French Government the Order of the Dragon de l'Annam. This decoration, which has not been previously conferred on any Canadian, is largely bestowed for military service. Some four years ago Dr. Roy, while making a trip round the world and being in Chinese waters, acted as emergency surgeon to a French warship which had been wrecked through an explosion. He attended for some days to about 20 injured sailors and accompanied them to Tonking where they were placed in the military hospital.

New Brunswick Medical Association.

The annual meeting of the New Brunswick Medical Association was held in St. John, N.B., on July 20th and 21st, under the presidency of Dr. J. R. McIntosh. Dr. S. Skinner, of St. John, in presenting a paper on Public Health, regretted that St. John had no medical inspection of schools. He also spoke of the dust in the streets and street noises, which he claimed were a menace to the health of the people. The report of the registrar of the society referred to the recent attempt to have the medical law of the province amended, but owing to strong opposition this had to be abandoned. Steps had been taken recently to establish the five-year curriculum in New Brunswick and so bring that province into line with the other provinces of the Dominion in this respect. It was decided to meet in St. John again next year as the Maritime Medical Association will meet there then; and the Canadian Medical Association will also be invited to meet in 1910 there, as the national medical body has not met in St. John since 1894. The following officers were elected: President, Dr. H. A. Murray, Fredericton Junction; first vice-president, Dr. C. T. Purdy, Moncton; second vice-president, Dr. G. G. Melvin, St. John; treasurer, Dr. D. E. Berryman, St. John; corresponding secretary, Dr. J. S. Bentley, St. John; and recording secretary, Dr. G. G. Corbet, St. John.

Maritime Medical Association.

The annual meeting of the Maritime Medical Association met in Charlottetown, P.E.I., on July 15th and 16th. A communication was read from the general secretary of the Canadian Medical Association concerning the affiliation of the maritime medical societies with the national medical body. No action was taken in the matter at that meeting. Another matter of interest brought up was the subject of reciprocal registration with Great Britain. This was introduced by a communication from the British Medical Association, which called attention to the fact that the five-year medical curriculum must be adopted to secure reciprocal registration with the General Medical Council of Great Britain. Correspondence was also submitted advocating inter-provincial registration amongst the provinces of the Dominion of Canada. This was referred to a committee of three. Dr. F. Montizambert, the Director-General of Public Health in Canada, was present and delivered an address on tuberculosis He believed that greater good could be accomplished by house visitation by nurses than by sanatoriums. Dr. Black, M.P., Windsor, N.S., advocated a bureau of health for Canada. An address was also delivered by Lieutenant-Colonel Carleton Jones, M.D., Director-General of the Canadian Army Medical Services, who referred to the laboratory being established by the Canadian Department of Militia in connexion with the Army Medical Corps. The following officers were elected for next year:—President: Dr. W. A. Ferguson, Moncton, N.B. Vice-Presidents: Dr. J. G. Macdonald, Amherst, N.S.; Dr. A. G. Ferguson, Dalhousie; and Dr. A. A. MacLellan, Summerside, P.E.I. Treasurer: Dr. D. D. Corbet, St. John, N.B. Secretary: Dr. G. G. Melvin, St. John.

Ontario Medical Council.

One of the most important subjects discussed at the annual meeting of the Ontario Medical Council in Toronto in July was that of restricting the practice of the osteopaths. In British Columbia a campaign is being waged against the osteopaths and they have been given until September to go out of business. As a consequence, several have already left Vancouver and Victoria for American cities. One of the clauses in the report of the registration committee of the Ontario Medical Council advised that immediate action should be taken against these self-same osteopaths, who in late years have been thriving all too plentifully in Toronto and other Ontario cities. The solicitor to the Medical Council has given his opinion that the osteopaths are carrying on business in contravention of the Ontario Medical Act. The matter was placed in the hands of the executive and action may be expected at any time. The Council also took up the question of reciprocity with the province of Manitoba and other Western Provinces. As a result, two special delegates were appointed by the Council from amongst its members to proceed to the annual meeting of the Canadian Medical Association at Winnipeg on August 23rd, 24th, and 25th, to confer with representatives from the Western Provinces. The question of reciprocity with Great Britain was mentioned, but the committee in charge asked that further time be given them to prepare a report. Reciprocity was also discussed with the State of Michigan, U.S.A., but the Council was of the opinion that the time was not opportune for any such measure. A long and at times animated discussion took place on what action the Council should take on criminal cases, several medical men having been before the law courts recently in connexion with abortion cases. Whilst the feeling ran strongly to prompt action in the way of removal from the Register, it was thought best to proceed with all due caution until the courts had established the guilt of such parties. Dr. E. P. Hardy (Toronto)was elected President and Dr. John L. Bray (Toronto) was re-elected registrar.

The Toronto General Hospital and the University of Toronto.

The *Canadian Practitioner and Review* for August, in an editorial article on this subject, says that by a recent agreement arrived at by the governors of the University and the board of trustees of the hospital the University will secure the south-west portion of the new hospital site for medical buildings, and for this privilege will make an annual grant of about $15,000 to the hospital for 40 years. By this arrangement the chief professors of medicine and surgery will be heads of services in the hospital and also heads of its special departments. Four members of the board of governors and four members of the board of trustees of the hospital will act as a joint committee to make recommendations for other appointments. Ground is now being prepared for the erection of the new Toronto General Hospital which is to cost about $2,200,000. The amount of subscriptions received at present is $1,200,000. The old hospital property will produce $300,000, and the recent agreement between the two institutions will be security for at least another $300,000. The new hospital will probably accommodate 500 patients—about 50 more than the present institution; and there is a feeling amongst some medical men that the old building should be still used for hospital purposes to accommodate the growing needs of the eastern portion of the city.

Toronto, August 3rd.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Lymphangioplasty for Elephantiasis.

AT a recent meeting of the Burma branch of the British Medical Association an interesting case was shown, the patient being an Indian, aged 35 years, belonging to the military lines, who was recently operated on for elephantiasis of the right leg, from which he had been suffering for the past few years, the operator being Major E. R. Rost, I.M.S., civil surgeon, Civil General Hospital, Rangoon. So far the results of the operation seem very satisfactory, The whole operation did not take over 20 minutes and the patient

experienced no distressing symptoms. The operation consisted of the introduction of several silk ligatures into the subcutaneous tissue of the diseased foot, which ligatures were carried up the leg and inserted into the muscles higher up. They drain away the fluid which cannot pass owing to the block in the lymphatic channels, the ligatures by capillary action acting as lymphatics. Fifteen days after the operation the patient was discharged. The leg, which previously to the operation was four times the thickness of the left leg, has been almost reduced to its normal state. The operation of lymphangioplasty is due to Mr. Sampson Handley who originally devised it for the relief of "brawny arm" in breast cancer when working in the Cancer Research Laboratories of Middlesex Hospital, as he recorded in THE LANCET, Vol. I., 1908, p. 784. He subsequently applied it to the treatment of elephantiasis with such success that he was able to refer to "a prospective cure" for that condition in your first issue of the present year. It is very encouraging to report a confirmation of Mr. Handley's work from a country in which elephantiasis is so rife as in India.

Plague.

The plague returns for the week ending July 3rd show 478 deaths, compared with 531 in the week preceding. Bombay Presidency reported 79, Madras 41, Bengal 60, the United Provinces 80, the Punjab 71, Burma 86, and Mysore State 60.

The Health of the Jails.

The effects of famine and malaria are very apparent in this year's report on the condition and management of jails in the United Provinces for 1908. The admissions to the jails (including transfers) were 98,217, or 25·91 per cent. higher than in the preceding year, and the daily average number of prisoners was 28,299, or 18·5 per cent. higher. The increase in admissions was particularly marked in certain of the districts that suffered severely from famine—Bahraich, Sitapur, and Gonda, and also in Hardoi. These districts also sustained the depredations of gangs of dacoits who were driven to crime by the famine. The death-rate of the jails was 60 per cent. higher than in the preceding year, a result directly attributable to the weakened condition of prisoners. The number of persons under 16 years of age sent to jail has increased by 57 per cent., without any reason being shown for this fact.

A Vaccine for Dysentery.

In the proceedings of the India Tea Association it is mentioned that the Director-General of the Indian Medical Service has been asked for information with regard to a vaccine which it is understood is of considerable value in the treatment of dysentery. The vaccine is the preparation of an officer of the Indian Medical Service, but is not available to medical officers in the tea districts. In a letter of June 24th the Sanitary Commissioner with the Government of India, to whom the matter has been referred, stated that pending the completion of a special inquiry into the etiology of dysentery in India now in progress at the Central Research Institute it was not considered advisable to issue dysentery vaccine.

Infant Mortality in Burma.

Are a hot, dry climate and low rainfall the natural conditions most prejudicial to infant life? This is a problem propounded by Major Williams, I.M.S., the Sanitary Commissioner of Burma, in his annual report. The death-rate of infants under 12 months for Burma in 1908 was 208·96 per 1000, and it appears that the more northerly the situation of the town, and consequently the drier and hotter the climate, the higher the death-rate. Another instance which Major Williams observes as producing an obviously deleterious result on infant life is the congestion of population and buildings in confined quarters in towns. The Lieutenant-Governor of Burma is, however, sceptical of the Sanitary Commissioner's conclusions. It is notorious that there are probably no people which exhibit greater fondness for children than the Burmans, and the Lieutenant-Governor believes that a great deal of the mortality is due to improper feeding through ignorance. The people of Burma are at present in a shockingly backward state as regards their notions of hygiene, and it is not surprising to find that they cannot look after their young children when we know their very insanitary customs. Meanwhile, every effort is being made to cultivate in the Burmans some of the fundamentals of sanitary knowledge, and it seems to be a good sign that measures which have been taken on these lines for the benefit of the rising generation in the Burmese schools have been successful.

The Accommodation for Soldiers' Families in the Hills.

The severe sickness that followed last year's rains through the length and breadth of Upper India has made the demand for hill accommodation for soldiers' families this year very considerable. There are always a large number of soldiers' wives who prefer the heat in the company of their husbands to the long and often dreary separation of a move to the hills. Soldiers and non-commissioned officers, too, often find that the cost of a home in the hills as well as in the plains is a very severe strain on their resources. This year, however, so great has been the demand for hill accommodation that there has been much difficulty in meeting it. The accommodation provided, considerable though it is, has never been adequate, and it has to be supplemented with tents. Not unnaturally soldiers' wives have a great antipathy to tents in the hills. They do not like the cold of the first weeks, when their blanket equipment is often inadequate, and they find the rains very wretched. The class of servants and odd natives that frequent such camps are notoriously bad, and thefts in tents are a constant source of complaint. It would seem to be very desirable that the amount of hut accommodation for families in the hills should be augmented, so that the major portion of the families might be saved from the dreary heat of the plains. The families of the rank and file are of a far superior class than in years gone by, and it is to the advantage of the army that they should be well accommodated, while it is distinctly to the advantage of India that the children should be reared in health-giving surroundings and given a fair chance to grow up as useful members of the community.

August 13th.

Obituary.

THEODORE DAVIS, M.D. LOND., F.R.C.S. ENG.,

CONSULTING SURGEON, CLEVEDON (SOMERSET) DISPENSARY AND CLEVEDON COTTAGE HOSPITAL.

Dr. Theodore Davis, one of the best-known and highly respected medical practitioners of Clevedon and the neighbourhood, died at his residence, Walton-in-Gordano, Clevedon, on August 11th, in his seventy-sixth year. He was the son of the late Dr. J. Davis of Clevedon, and received his medical education at Queen's College, Birmingham, and St. Bartholomew's Hospital, London. He obtained the F.R.C.S. Eng. in 1859, and two years later took his London doctorate. Dr. Davis shortly afterwards commenced practice at Clevedon, where he soon obtained an honourable reputation and a leading position in the district, and was often sought in consultation by his professional brethren. Dr. Davis was on the honorary staff of the local hospital and also of the dispensary. He had retired from active work for some years owing to failing health. Dr. Davis will be much missed in Clevedon, and great sympathy is felt there for his widow and family. The funeral, which took place at Clevedon Churchyard on August 14th, was largely attended.

EDWARD MORRIS, M.R.C.S. ENG., L.S.A.

Mr. E. Morris, who died at his residence, 5, Capreraterrace, North-road, Plymouth, on August 10th, from heart failure, was a veteran of the medical profession, for he was born on March 15th, 1827, at Devonport. He was educated at the Plymouth Grammar School, and was afterwards a pupil to Mr. J. Whipple, surgeon. Later he joined St. Bartholomew's Hospital, taking the M.R.C.S. and L.S.A. qualification in 1854 and 1856 respectively. Shortly after qualifying Mr. Morris was appointed house surgeon at his own hospital, and later was for two years senior house surgeon at the Liverpool Royal Infirmary. In 1860 Mr. Morris commenced practice in Plymouth, and was appointed certifying factory surgeon. He was also appointed surgeon to the South Devon Militia. Mr. Morris was for many years medical emigration officer under the Board of Trade. He occupied a prominent position in the "Three Towns," where he had an extensive practice and a considerable reputation. Mr. Morris never married.

For some years he had retired from all active work, and for the past three years had suffered from cardiac disease. The funeral took place on August 13th and was very largely attended by many anxious to show respect for an old friend who had died full of years and honour.

Medical News.

UNIVERSITY OF LONDON.—At examinations for internal and external students held in July the following candidates were successful:—

FIRST EXAMINATION FOR MEDICAL DEGREES.

Douglas Reid Alexander, Epsom College; ‡Elizabeth Labrey Ashby, University of Birmingham; Frank Montague Barnes, St. Thomas's Hospital; Irene Bastow, London (Royal Free Hospital) School of Medicine for Women; William Roy Blore, The Leys, Cambridge; ‡John Bostock, London Hospital; *Gerald Kessick Bowes, Epsom College; Alice Dorothea Brooks, London (Royal Free Hospital) School of Medicine for Women; Frederick Charles Sedgwick Broome, Guy's Hospital; Owen Deane Brownfield, Epsom College; Isabel Florence Buckle, London (Royal Free Hospital) School of Medicine for Women; William Burt, St. Thomas's Hospital; Frederick Wyndham Chamberlain, Middlesex Hospital; Harold Garrett Chaplin, St. Thomas's Hospital; John Eric Cheesman, South-Western Polytechnic Institute; Harold Aylmer De Morgan, Middlesex Hospital; *‡Arthur Rawdon C. Doorly, St. Thomas's Hospital; Cyril Henry Edwards, St. Paul's School; Ahmed Fahmi El-Hakim, London Hospital; Robert Ellis, University of Birmingham; Philip Oswald Ellison, St. Bartholomew's Hospital; Hugh James Orr, Ewing, University College, Bristol; ‡Charles Hamilton Gould, Guy's Hospital; David William Griffith, University College, Cardiff; *Mary Esther Harding, London (Royal Free Hospital) School of Medicine for Women; John Richard Harris and †Claude Charles Harrison, University College, Bristol; Horace William Hay, University College; †Hugh Langridge Hitchings, Guy's Hospital; Alec George Holman, London Hospital; †Henry Julyan Hoyte, University College, Nottingham; Charles Evans Jenkins and Kingsley Wassell Lewis, University College, Cardiff; Oliver Cuff Link, Middlesex Hospital; Iorwerth Hubert Lloyd-Williams, University Tutorial College and private study; Robert John McNeill Love, Plymouth Technical Schools; *Norman Peace Lacy Lumb, St. Thomas's Hospital; William Francis MacAlevey, University of Birmingham; Jivraj Narayan Mehta, Grant Medical College, Bombay, and University Tutorial College; James York Moore, Guy's Hospital; Arthur Daniel Morris, University College, Cardiff; Purushottam Tulsibhai Patel, Grant Medical College, Bombay, and University Tutorial College; Thomas Bond Paul, Middlesex Hospital; Innes Hope Pearse, London (Royal Free Hospital) School of Medicine for Women; Julian Lionel Priston, London Hospital; Charles Edgecumbe Procter, Epsom College; Frederick Tavinor Rees, University College, Cardiff; †Robert Edward Roberts, University of Liverpool; James Albert Robinson and William Eric Roper Saunders, St. Bartholomew's Hospital; Henry Richard Sheppard, Brighton Municipal Technical College; Reginald Hugh Simpson, Epsom College; John Smith Sloper, St. Thomas's Hospital; †Edward Seguier Sowerby, University College, Bristol; Clifford William Sparks, St. Thomas's Hospital; John Eric Stacey, University of Sheffield; Grace Stapleton, London (Royal Free Hospital) School of Medicine for Women; John Stephenson, Alleyn's School, Dulwich; William Edmund Taylor, University College, Bristol; Naomi Tribe, London (Royal Free Hospital) School of Medicine for Women; Henry Parks Whitworth, Guy's Hospital; Gerald Richard Courtenay Wilson, St. Thomas's Hospital; Arthur Graham Winter, London Hospital; and Herbert Gregory Winter, Epsom College.

* Awarded a mark of distinction in organic chemistry.
† Awarded a mark of distinction in physics.
‡ Awarded a mark of distinction in general biology.

The following students who took a portion of the examination under Old Regulations have now completed it:—

William Claude Percy Barrett, University College; Thomas David Collis Barry, private study; Frederic Vivian Bevan-Brown, Guy's Hospital; Ursula Poussett Blackwell, London (Royal Free Hospital) School of Medicine for Women; Percy Butler, University College; Ying-Jue Cieh, King's College; Aaron Simeon Cohen, University College, Cardiff; Dora Challis Colebrook, London (Royal Free Hospital) School of Medicine for Women; Meherjibhoy Bomanji Cooper and Stephen Andrew Cornelius, University College; John Kenyon Davies, University College, Cardiff; Charles Frederick Hacker, University College and Northern Polytechnic Institute; Stanley Sextus B. Harrison, Guy's Hospital; Leonard Kingdon, King's College; Reginald Walter Little, University College, Cardiff; Desmond Manus MacManus, Guy's Hospital; Gladys Matthews, Ladies' College, Cheltenham; Allan Noel Minns, private study; John Ernest Pearce, Brighton Technical College and private study; Stanley Hugh Robinson, Guy's Hospital; Gordon Wilfrid R. Rudkin and Eric Arnold Scott, University College; Gerald Davenant Shann and Maurice Ulick Wilson, King's College; and Siong Yew Wong, St. Thomas's Hospital.

The following students who took a portion of the examination under Old Regulations have now qualified as follows:—

Inorganic Chemistry.—John Prichard Bracken (*p*), University College; and John Alexander Pridham (*p*), Weymouth College.
Physics.—Ernest James Coombe (*c*), King's College; and Frank Brayshaw Gilhespy (*b*), University College.
General Biology.—Gwendolyn Margaret Burns (*c*), London (Royal Free Hospital) School of Medicine for Women.

p. This candidate had already passed in experimental physics.
c. This candidate had already passed in inorganic chemistry.
b. This candidate had already passed in biology.

SECOND EXAMINATION FOR MEDICAL DEGREES.

Part I.—Basil William Armstrong, St. Mary's Hospital; John Rawlings Barrow-Clough, Guy's Hospital; Robert Maitland Beath, Queen's College, Belfast; Kenneth Biggs, London Hospital; Percy Butler, University College; George Maclean Campbell and Alice Hope Christie, University College, Bristol; John Archer Cowan, University College; Michael Joseph Cronin, London Hospital; Francis Eldon Daunt, St. Thomas's Hospital; Hector Wynne Davies, University College; Henrietta Frances Davies, London (Royal Free Hospital) School of Medicine for Women; John Yerbury Dent, King's College; George Dunluce Eccles, Guy's Hospital; Herbert Thomas Evans, Birkbeck College and Jesus College, Oxford; Walter Stuart Evans, University College; Frank Rex Fletcher, London Hospital; *Walter Barham Foley, St. Thomas's Hospital; Katherine Mary Lovell Gamgee, University College; Georg Arnold Gassmann, London Hospital; Edward Alexander Marie J. Goldie, University College; Una Griffin, London (Royal Free Hospital) School of Medicine for Women; Robert Lister Horton, University College; Richard Orthin Hilton Jones, University of Liverpool and private study; Mildred Archer Jukes, London (Royal Free Hospital) School of Medicine for Women; Rustam Merwan Kharegat, University College; William Joseph Teil Kimber, St. Thomas's Hospital; Eric Pierpoint Langley, St. Mary's Hospital; Edward Athol C. Langton, St. Bartholomew's Hospital; Constance Leetham, London (Royal Free Hospital) School of Medicine for Women; William Leslie, Charing Cross Hospital; Eric Delafield Lindow, King's College; Muriel Annie Lloyd and Helena Rosa Lowenfold, London (Royal Free Hospital) School of Medicine for Women; Arthur G. Maitland-Jones, London Hospital; Refna Mallet, London (Royal Free Hospital) School of Medicine for Women; Lionel Arthur Martin, University College; George Sefton Miller, Guy's Hospital; Wilfrid Egerton Milligan, St. Thomas's Hospital; Donald Ewart Morley, London Hospital; Edith Mary Nesbitt Moss, University College, Nottingham; Cyril Eaton Petley, Guy's Hospital; John Alexander Poole, St. Bartholomew's Hospital; Edna Mary Powell, London (Royal Free Hospital) School of Medicine for Women; Richard Amyas Preston, University of Leeds and private study; John Beaufoy Randall, St. Bartholomew's Hospital; Winifred Mary Ray, London (Royal Free Hospital) School of Medicine for Women; Leslie Norman Reece, St. Thomas's Hospital; Francis Charles Robbs, St. Mary's Hospital; Cedric Sydney Lane Roberts, Guy's Hospital; George Henry Roberts, St. Thomas's Hospital; Henry Colwell Rook, John Alfred Ryle, Evelyn Dennis Scott, Cyril Sherris, and *Arthur Joseph E. Smith, Guy's Hospital; Harold Edward Smith, University of Sheffield; Margaret Edith Elliott Smith, London (Royal Free Hospital) School of Medicine for Women; Sidney Smith, King's College; *William Henry Dakin Smith, University College; William Collis Spackman, University of Birmingham; Clement Kirwan Sylvester, St. Bartholomew's Hospital; Harman Taylor, Victoria University of Manchester, Manchester Municipal Technical School and Private Study; James Robert Karran Thomson, London Hospital; Thomas Burdock Valle, St. Bartholomew's Hospital; Mary Alice Van Ingen, London (Royal Free Hospital) School of Medicine for Women; Herman Crowther Viehoff, University of Liverpool; Ernest Wentworth Wade, University College, Bristol, and Private Study; Alfred Stewart Wakely, King's College; John Richard Menzies Whigham, St. Mary's Hospital; John Delafosse Wilkinson and John Douglas Wilkinson, St. Thomas's Hospital; Alfred Wills, Guy's Hospital; Alan Wilson, University College; Oscar Reginald Lewis Wilson, Guy's Hospital; and Arthur Wai-tak Woo, London Hospital.

* Awarded a mark of distinction.

Among the successful candidates in the scholarships examination were the following:—

Physics.—Lewis Simons (Neil Arnott Scholarship), King's College.
Chemistry.—John Edmund Brimley (Neil Arnott Scholarship) and Hubert Arthur Harry Howard, East London College.
Botany.—*Gertrude Maria Talbot, University College; and *Elizabeth Mary Thomas, Birkbeck College and South-Western Polytechnic Institute.

* A Gilchrist Scholarship is divided between these two candidates.

THE death of another centenarian is reported, Mrs. Jane Allen having died at Scarborough on August 13th in her 101st year.

NORFOLK AND NORWICH HOSPITAL.—On August 14th the Charity Football Cup Competition Committee existing in connexion with this hospital presented the institution with a cheque for £130, making a total of £730 which has been collected through this channel during six years. This amount is contributed chiefly by the working classes and represents the proceeds of the "gate" on the day of the competition for the Charity Cup. Mr. Leathes Prior presented the cheque on behalf of the working men of Norwich.

KENT COUNTY COUNCIL.—A committee of the Kent County Council has recommended the council to pass a resolution to group Queenborough, Sittingbourne, Milton Regis, and Milton Rural under one whole-time medical officer. It has also directed that a letter should be sent to the boards of guardians in the county of Kent on the subject of the payment of fees to medical men summoned by midwives to assist them in difficult cases under the provisions of the Midwives Act, stating that it was desirable for medical men to be paid for such services, as it did not appear that guardians exercised their powers to make these payments (subject to recovery of fees, where possible, from the patient), as frequently as was desirable.

THE BURTON-ON-TRENT INFIRMARY.—The committee of this institution has decided to make some necessary enlargements in the out-patient department for provision of better accommodation for X ray and other work. Plans have been prepared by Mr. H. Beck, the hospital's architect, and a tender of £700 for the improvements has been accepted.

PTOMAINE POISONING AT COLCHESTER.—A disturbing incident occurred at Colchester on August 15th, nearly 70 men in the barracks having been seized with symptoms suggesting ptomaine poisoning after eating a kedgeree of fish and rice. They were admitted to the Garrison Hospital, but they recovered sufficiently to be discharged shortly afterwards.

FATAL PANIC AT A KINEMATOGRAPH EXHIBITION.—On August 14th an unfortunate panic occurred at the Victoria Hall, Southsea, during the progress of a kinematograph performance. The accidental ignition of the film excited sudden alarm, although the fire was extinguished by means immediately available. A woman, however, shouted "Fire," which caused a stampede amongst a number of children in the gallery, and rushing downstairs many of them became jammed in the entrance to the street door, with the result that the 11-year-old son of a workman was killed, and eight others were injured more or less severely. No blame appears to have attached to the management of the exhibition in the precautions taken to prevent the disaster.

PLUMBING CLASSES IN LANCASHIRE.—Sir Henry Hibbert, chairman of the Lancashire education committee, distributed at Preston last week the prizes won by students at the plumbing classes in a special series of examinations in practical work, conducted at the chief educational centres in Lancashire. Sir Henry Hibbert said that, so far as he could gather, Lancashire stood alone at present in regard to these practical tests of workmanship. The reason was that the county education committee attached a high degree of importance to successful craftsmanship in plumbing both from the hygienic and commercial points of view. They had to a very large extent been helped by the Worshipful Company of Plumbers.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Lunacy Returns.

THE annual report of the Commissioners in Lunacy has just been issued as a Parliamentary Blue-book. It is stated therein that there were known to be under care on Jan. 1st, 1909, in England and Wales 128,787 persons certified as insane. The number exceeds by 2703 the number of insane recorded on Jan. 1st, 1908—namely, 126,084. The pauper patients on Jan. 1st, 1909, were 117,377, or 91·1 per cent. of all certified insane. The Commissioners make allusion to the report of the Royal Commission on the Care and Control of the Feeble-minded and express agreement with the suggestion to permit the courts to have the condition of mental defectives inquired into at an earlier stage than is now done.

Metropolitan Ambulances Bill.

The Metropolitan Ambulances Bill has passed through one of the Standing Committees of the House of Commons. This is the measure which Sir WILLIAM COLLINS introduced some time ago to enable the London County Council to establish and maintain an ambulance service in London. There has been a difference of opinion as to what authority should undertake this work and this was reflected in the discussion on the Bill. Mr. PEEL, who has introduced a Bill to entrust the Metropolitan Asylums Board with the duty, moved the rejection of the first clause which gives to the London County Council power to establish the ambulance service. He quoted the finding of the majority of the recent Departmental Committee in support of his argument that the work should be carried out by the Metropolitan Asylums Board. Sir WILLIAM COLLINS strongly opposed Mr. PEEL's views. He expressed the opinion that the London County Council could carry on the ambulance service much more economically than the Asylums Board. In insisting on the need for legislation on the subject, he mentioned that the number of accidents on the streets of London was going up by leaps and bounds. Whereas in 1905 they amounted to 10,260, in 1906 they reached 12,237, and last year they totalled 14,323. Mr. GLADSTONE, the Home Secretary, gave his support to the proposals of the Bill of Sir WILLIAM COLLINS, but he emphasised the fact that he did not commit the Government to it. He stated that he had given the whole question careful consideration, and had come to the conclusion that the London County Council as a rating authority was the best body to which to entrust the administration of the ambulances. The right honourable gentleman asked the Committee not to delay the Bill as legislation was urgent. Before the division was taken Sir WILLIAM COLLINS stated that several well-known philanthropists had expressed the intention of offering electric motor-ambulances for the service. Clause I. was ultimately carried by 28 votes to 1. On the motion of Mr. GLADSTONE, the following new clause was inserted in the Bill:—"The London County Council may allow the ambulance service established under this Act to be used, on such terms and conditions as may be agreed upon, by any local authority having powers under section fifty of the Public Health Acts Amendment Act, 1907." The Bill as amended was ordered to be reported to the House.

Glasgow Hospital for Skin Diseases.

The Glasgow Hospital for Skin Diseases Confirmation Order Bill has passed through all its stages in both Houses of Parliament and has received the Royal Assent.

The Midwives Act.

The report of the Departmental Committee appointed by the Lord President of the Council to consider the working of the Midwives Act, 1902, has been presented to Parliament.

Asylum Officers' Superannuation.

A special report has been brought forward by the Select Committee of the House of Commons on the Asylum Officers' Superannuation Bill. The Committee has found that even before it entered upon its inquiry there was a considerable accumulation both of precedent and authority in favour of the principle that a system of substantial superannuation allowances for meritorious service in public asylums, certain in its operation and contributory in its method, was desirable, just, and expedient. The Committee has come to a strong and unanimous opinion that legislative effect should forthwith be given to this principle. It has further endeavoured to amend the Bill introduced by Sir W. COLLINS to deal with the superannuation of asylum officers in such a way as to apply to the special exigencies and requirements of the asylum service, *mutatis mutandis*, the methods already approved in the case of the Poor-law and the police.

HOUSE OF COMMONS.

THURSDAY, AUGUST 12TH.

Housing and Town Planning Bill.

Answering Lord ROBERT CECIL, Mr. ASQUITH stated that he could not say when the committee stage of the Housing and Town Planning Bill would be taken.

Mr. WEDGWOOD: In view of the change which the proposals of the Government for a complete valuation will make will the right honourable gentleman postpone this Bill until next session in order to take advantage of that valuation?

Mr. ASQUITH: No, sir.

The Public Analyst for the Isle of Wight.

Mr. GODFREY BARING asked the President of the Local Government Board whether, having regard to the passage in the report of Dr. Buchanan on the work in relation to the Sale of Food and Drugs Acts, contained in a supplement to the thirty-seventh annual report of the Board, 1907–08, he would be prepared to sanction the appointment of Mr. E. W. Pollard, of Ryde, as public analyst for the administrative county of the Isle of Wight; and, if not, would he state the objections to the confirmation of such appointment?—Mr. BURNS furnished the following written reply: The Local Government Board has objected to Mr. Pollard's appointment, firstly on the ground of his being engaged in a trade or business connected with the sale of drugs in the county, and secondly because it is not satisfied of his competent skill in, and knowledge of, analytical chemistry. A proposal has been made to meet the first objection, but this does not touch the second, and in the circumstances I do not feel able to approve of the appointment. The objections are in no way affected by the passage referred to in Dr. Buchanan's report.

Tetra-chloride of Carbon as a Hair-wash.

Sir WILLIAM COLLINS asked the Secretary of State for the Home Department whether he was aware of the extensive use of tetra-chloride of carbon as a hair-wash; whether his attention had been called to a recent death of a young lady while her hair was being shampooed with this compound; whether his attention had been directed to the poisonous properties of carbon tetra-chloride; whether any restrictions upon the sale or use of this compound at present existed; and whether he proposed to take any steps in the matter.—Mr. GLADSTONE wrote in reply: My attention has been called to the use of tetra-chloride of carbon as a hair-wash, to the very great danger involved, and to the death referred to by my honourable friend. I am informed by the Privy Council that tetra-chloride of carbon is not a poison within the meaning of the Pharmacy Acts, and there are, therefore, no restrictions as to its sale. As regards the steps to be taken in the matter, I can only say that the Director of Public Prosecutions has the question of a prosecution now under his consideration.

TUESDAY, AUGUST 17TH.

The Royal Army Medical Corps in Ireland.

Mr. ASHLEY asked the Secretary of State for War how many officers of the Royal Army Medical Corps were serving at Dublin, Belfast, Cork, Kildare, and the Curragh on March 31st last; how many of these officers during the year ending March 31st last received their full leave of 61 days; how many of the remainder received more than one month; and how many under one month.—Mr. HALDANE replied: Forty-eight officers were serving at these stations on March 31st last. Of these six had received their full leave, 21 had more than one month, and 21 had less than one month. Some of the last mentioned had only recently joined

the corps, and some officers had returned during the year from stations abroad where they had already had the leave to which they were entitled.

The Tsetse Fly and Sleeping Sickness.

Mr. REES asked the Under Secretary of State for the Colonies whether the Government had yet acquired any reliable information regarding the relations between big game and tsetse fly in Central Africa; and if so what bearing such information had upon the policy of game preservation and of prevention of sleeping sickness.—Colonel SEELY replied: The relation between big game and the tsetse fly in Central Africa is a much-debated question. A strong committee has been recently appointed by the Secretary of State for the Colonies to organise entomological research in tropical Africa, and I have no doubt that this question, amongst others, will receive their earnest consideration.

A Consignment of Frozen Meat.

Mr. STANIER asked the President of the Local Government Board whether he could publish the report of the medical officer of health on the consignment of frozen meat landed by the Peninsular and Oriental steamer *Palermo* at the Royal Albert Docks from China.—Mr. BURNS replied: I have no doubt that the medical officer of health of the City will ultimately deal with this matter in the report to the sanitary committee of the Corporation which will be printed and issued in the usual way. But no general report can be made for some time as the carcasses will not be thawed and examined all at once, but only as they are required for trade purposes. So far less than 5 per cent. of them have been thawed and examined.

WEDNESDAY, AUGUST 18TH.

Typhoid-carriers in the Army.

Sir WILLIAM COLLINS asked the Secretary of State for War whether he would state what was the nature of the later treatment to which the soldiers treated at Millbank Hospital as typhoid carriers, on whom experimental methods with antityphoid injections were made, had been submitted; and whether he would lay upon the table papers showing the results obtained by the various methods employed in these cases in continuation of those already laid.—Mr. HALDANE wrote in reply: The later treatment alluded to consists in treating the urinary cases with sodium benzoate and acid sodium phosphate. X ray treatment is being tried in one of the intestinal cases with marked gall-bladder symptoms. It is yet too early to speak of results, but I shall be prepared to lay papers on the subject at a later period.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BARTLETT, CHARLES E., L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer by the Chepstow (Mon.) Board of Guardians.

BROWNE, FRANCIS JAMES, M.B., Ch.B. Aberd., has been appointed District Medical Officer by the Bedwellty (Mon.) Board of Guardians.

DAVSON, FREDERICK ADAMS, M.D., C.M. Aberd., M.R.C.S., has been appointed Deputy Port Medical Officer of Health for the Dartmouth and Totnes (Devon) Port Sanitary Authority.

DRAKE, JOHN ALEXANDER, M.B. Lond., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer to the Post Office at Tenby.

HAMILTON, ROBERT, M.D. Edin., has been appointed Junior Assistant Medical Officer at Sunnyside Asylum, Montrose.

GRAY, WALTER GORDON, L.R.C.P., L.M. Edin., M.R.C.S., has been re-appointed Medical Officer of Health for Holsworthy (Devon) Urban District Council.

MCKAIL, DAVID, M.D. Glasg., D.P.H., has been appointed Lecturer on Hygiene to Nurses in Training in the Glasgow Royal Infirmary.

MACKAY, D. MATHESON, M.D., C.M. Edin., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Assistant Ophthalmic Surgeon to the Hull Royal Infirmary.

MOLE, H. F., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Surgeon to the Royal Infirmary, Bristol.

SCALES, F. SHILLINGTON, B.C. Cantab., has been appointed Honorary Medical Officer in Charge of the Electrical Department at Addenbrooke's Hospital, Cambridge.

SMITH, G. MUNRO, L.R.C.P., M.R.C.S., has been appointed Consulting Surgeon to the Royal Infirmary, Bristol.

WALTERS, C. FERRIER, F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Assistant Surgeon to the Royal Infirmary, Bristol.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BEDFORD COUNTY HOSPITAL.—House Physician. Salary £60 per annum, with apartments, board, and washing.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road, Birkenhead.—Honorary Acting Medical Officer.

BRENTWOOD, ESSEX AND COLCHESTER ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board.

BRISTOL, BRENTRY CERTIFIED INEBRIATE REFORMATORY, Westbury-on-Trym.—Superintendent and Medical Officer. Salary £400 per annum, with board and residence.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £70 per annum, with board and lodging.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 and £100 per annum, with board, lodging, and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 per annum, with board, apartments, and laundry.

EBBW VALE STEEL, IRON, AND COAL CO., LIMITED.—Medical Officer for the Inspection of Injured Workmen. Salary £250 per annum.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £60 per annum, with board and washing.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and washing.

FULHAM INFIRMARY, St. Dunstan's-road, Hammersmith, W.—Assistant Medical Superintendent, unmarried. Salary £150 per annum, with board, apartments, and washing.

GLASGOW, ANDERSON'S COLLEGE MEDICAL SCHOOL.—Chair of Physiology.

HALIFAX, ROYAL HALIFAX INFIRMARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

LEEDS, HOSPITAL FOR WOMEN AND CHILDREN.—Honorary Assistant Surgeon.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Physicians and Three House Surgeons, all for six months. Salary at rate of £60 per annum, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried. Salary £40 and £50.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £80 per annum, with apartments and board.

MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Junior Resident Medical Officer at Hampstead, also Assistant Resident Medical Officer at Northwood. Salary in each case £50 per annum, with board and residence.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—House Surgeon. Salary £60 per annum, with board, residence, and laundry.

NORWICH, HEIGHAM HALL PRIVATE ASYLUM.—Assistant Medical Officer. Salary £120 per annum, all found.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Two Assistant Resident Surgeons, unmarried. Salary £160 each, with apartments, attendance, light, and fuel.

OLDHAM INFIRMARY.—Senior House Surgeon, also Third House Surgeon, both for six months. Salary of former £120 per annum, and of latter £80 per annum, with residence, board, and laundry.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—House Surgeon, also Junior House Surgeon, both for six months, and unmarried Salary of former at rate of £80 per annum, and of latter at rate of £40 per annum, with board, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Resident Medical Officer. Salary £100 per annum, with board, residence, and washing.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum, with rooms, commons, and washing.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—Assistant House Surgeon. Salary £82 per annum, with board, residence, and laundry.

SUNDERLAND AND DURHAM COUNTY EYE INFIRMARY, Sunderland.—House Surgeon, unmarried. Salary £210 per annum.

TEIGNMOUTH HOSPITAL, S. Devon.—House Surgeon. Salary £70 per annum, with board, lodging, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary at rate of £80 per annum, with board, lodging, and laundry. Also Resident Surgical Officer. Salary £125 per annum, with board, lodging, and laundry.

Births, Marriages, and Deaths.

BIRTHS.

BOXALL.—On August 13th, at Rudgwick, Sussex, the wife of Frank Boxall, M.R.C.S., L.R.C.P., of a daughter.

EWENS.—On August 14th, at West Chase, Maldon, Essex, the wife of H. L. Ewens, M.D., of a daughter.

GOLDIE-SCOT.—On August 16th, at Pilmuir, Pencaitland, the wife of T. Goldie Scot, M.B., of a son.

MARRIAGES.

BABER—VINCENT-WING.—On August 12th, at St. Mary's Church, Wimbledon Park, Henry Aitkens Baber, M.R.C.S., L.S.A., to Ada Mary Vincent-Wing, of Hartley House, Chipping Sodbury, Glos.

DEATHS.

DAVIS.—On August 11th, at Walton-in-Gordano, Clevedon, Somerset, Theodore Davis, M.D. Lond., F.R.C.S. Eng., aged 75 years.

MENNIE.—On August 16th, suddenly, at Balgownie, 211, Bridge-road, Battersea, S.W., James Edward Mennie, M.B., Ch.B. Aberdeen.

STEELE-PERKINS.—On July 30th, at his residence, Wilton-place, Exeter, E. B. Steele-Perkins, L.S.A., in his 68th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE TREATMENT OF ADDER BITES.

MEDICAL attention in this country has been recently directed towards the treatment of adder bites owing to the severe injury sustained from an English adder by Dr. Herbert Peck, medical officer of health of Chesterfield, an accident which happily has not been fraught with such serious results as appeared possible from the reports first published. A medical correspondent whose family is proceeding for a holiday to a Cumberland dale which is said to harbour a number of adders has written to us to inquire whether a serum can be obtained in this country to counteract their poison and what other means of treatment are available. We are not aware that a special antivenene is prepared against *Vipera berus*, the English adder, but we gather from the excellent work on "Venoms" by Dr. Calmette of Lille that the anti-neurotoxic serum prepared from cobra venom may be partially effective against viperine venoms. If, however, the particular venom contains much of the poison known as hæmorrhagin that serum is apparently of little use. Dr. Calmette has found it impossible to procure sufficient quantities of venoms of various origins to furnish each country with the polyvalent serums corresponding to its particular needs, and it could hardly be expected that serums should have been prepared against the poisonous snakes of the temperate European countries, injuries from which are comparatively rare. The following is a brief abstract of Dr. Calmette's recommendations for the treatment of the bite of a venomous snake:—1. Prevent absorption by a ligature kept tight above the wound for not more than half an hour. Suck the wound, which can be more effectively done if a small incision is made over it in the longitudinal axis of the limb. 2. Wash the wound freely with fresh 2 per cent. solution of hypochlorite of lime, or 1 in 1000 solution of chloride of gold; if these are unavailable use a 1 per cent. solution of permanganate of potash. A few cubic centimetres of one of these reagents should be injected all round the bite punctures. 3. Cover the wound with a dressing damped with hypochlorite of lime or pure alcohol. 4. Administer serum if available into the loose tissues of the abdominal wall with a Pravatz syringe. If serious intoxication has supervened from 10 to 20 cubic centimetres may be injected into a vein. 5. Give copious hot drinks, tea or coffee, and induce perspiration by wrapping the patient in blankets. Dr. Calmette says that ammonia, alcohol, or morphine are useless, and strychnine may be actually harmful. Whilst this advice is probably the most authoritative that can be obtained, some Anglo-Indian authorities place their chief reliance in the "Lauder Brunton" method of scarifying the skin about the bite puncture with a lancet and freely rubbing in crystals of permanganate of potash.

THE ETYMOLOGY OF "ALCOHOL."

To the Editor of THE LANCET.

SIR,—A recent article in a daily newspaper in discussing the etymology of the word alcohol stated it to be the Arabic *al-kohl*; "al" being the definite article, as in "algebra" (the reduction), and "alkali" (the soda-ashes). "Kohl" was no other than the black powder with which the Eastern beauties stained their eyelids. Then, as we are informed, the word "*alcohol* came to be used for any finely triturated or sublimated powder, and then for sublimated liquids. 'Alcohol of wine' being the most interesting of these, it gradually took the name entirely to itself." This interesting statement contains a certain portion of etymological and physical truth, but by no means the whole. A supplemental physical and physiological fact is that the Arabian beauties—and even the more well-to-do members of the coarser sex—used the kohl (or antimonial) black powder as an eyelid stain with a utilitarian object comparable to that which inspired the construction of the "Venetian blind"; it screened off the dazzling rays of the sun in a land of perhaps uniquely trying solar influences. And Arabia, which produced the most successful of all conquerors and the most rapidly expansive of all creeds, kept burning for centuries the light of science for the gradual illumination of Western Europe. Chemistry, as well as algebra and arithmetic—inclusive of the 10 symbolic "digits" of the latter—emanated from the impenetrable deserts which have ever been so jealously guarded by the sons of Ishmael. And so little was its jargon understood in these Western isles of our own that a sixteenth century English version of the principal works of Geber, one of the fathers of "al"-chymy, was believed by the great Dr. Samuel Johnson to have suggested the invention of the new word "gibberish." (It is very evident, indeed, to the skilled reader that the translation had not been made by a scientific expert—or even by a literary artist.) Then the Arabs—with their Jewish neighbours—were the apostles of medicine to Western Europe. The famous *Canon* of the Arabian Avicenna was the medical Bible of Europe for about five centuries. The most precious drugs and spices came from "Araby" and adjacent localities. And the action of new chemical substances was always tested on the human body, when the novelty was observed to be a powerful reagent. It was soon found that a fairly dilute alcohol was one of the best of astringent and tonic *collyria*. Hence it was used as an *adjuvant* to *kohl*, and frequently as a *substitute*. Hence the etymology of alcohol. I may add that the cosmopolitan diffusion of therapeutic ideas which have long ceased to be orthodox is illustrated by a story of its use in a remote Irish dispensary three-quarters of a century or so ago. Brandy was dispensed to a case of granular conjunctivitis, with instructions for use after addition of an equal bulk of water. The patient's wife was well to the front with the empty "medicine bottle" on the next dispensary day. The medical man, in pouring out a new supply of the collyrium, asked how the patient found the medicine to "agree." "Oh, he likes it greatly, yer honour," was the prompt reply, "but he can never get it any higher than his mouth."

I am, Sir, yours faithfully,

Dublin, July 28th, 1909. JOHN KNOTT, M.D. Dub.

THE HOSPITAL GAZETTES.

THE *Charing Cross Hospital Gazette* (July) records a change of editors and affords a fair example of the lighter sort of hospital journal. Its chief contribution is a readable article dealing with the History of the Drama, but perhaps a collection of Answers to apocryphal correspondents and odd aphorisms will have received closer attention at "The Cross." "A little woman is a dangerous thing" is certainly a neat misquotation.—*Guy's Hospital Gazette* of July 24th and August 7th contains an instructive lecture by Dr. Herbert French on Sudden Death. In the latter number the editor has set his imaginative artist to illustrate a scene from the annals of Guy's depicting the farewell between the great Sir Astley and no less great Dupuytren, who had accompanied him round the wards, and who "when he took leave saluted the worthy baronet on each cheek," an attention very much to the fancy of the surrounding Bob Sawyers. We believe that a similar incident happened to a very distinguished medical baronet on the occasion of a banquet given in his honour in Paris not so very many years ago, much to the embarrassment of the victim. The same *Gazette* contains the following delightful piece of nonsense:—

> "Once upon a time, a man went to a London hospital to have his eyes cleaned. After one eye had been taken out and placed on the table the doctors were called away suddenly, and they went off leaving the door open, the patient of course being unconscious. Thereupon the cat came in and ate the eye on the table. The doctors returning, killed the cat, and replaced the missing eye with one of the cat's, and ever after the man could see with one eye in the light, and with the other in the dark."

—The Clinical Supplement of the *London Hospital Gazette* for July is devoted to the "Surgical Aspects of Osteo-arthritis," and is from the pen of Mr. H. E. Ridewood, whilst in the body of the paper is a clinical lecture on Diseases of the Gall-bladder by Mr. Frederic Eve, besides a deal of more ephemeral matter. The account of the London Hospital sports reproduces a "snapshot" of Mr. A. C. Palmer winning the long jump, which is a remarkable record of muscular action.—To the *Middlesex Hospital Gazette* (July) Mr. John Bland-Sutton contributes an after-dinner discourse on "Some Facts and Fancies of Modern Medicine," in the course of which he prophesies that whilst the present methods of physical diagnosis will ever remain in use, pharmaceutical remedies will be more and more replaced by vaccines prepared in the laboratory. He alludes later to the extraordinary theory once held and advanced by the Sardinian Commission, that cretinism might be due to the drunkenness of one of the parents at the time of conception of the cretin. Mr. H. E. Earle writes on the "Theory of Functions," illustrated from the pancreas and the liver, and an anonymous bard hymns "The Wily Senna," in strains no less delicate than Bunthorne's "Hollow" apostrophe of Colocynth and Calomel.—*St. Bartholomew's Hospital Gazette* (August) presents one of Dr. T. Claye Shaw's stimulating addresses on "The Span of Life," whilst the same journal in its previous month's issue contained a report of a case of triplet birth in which Mr. W. Wyllys safely delivered a patient of three live children and three placentas.—*St. George's Hospital Gazette* (July) continues its chapter from the Hospital's History and revives that excellent old story of the student "on the district" who was cocksure that he had a case of neck presentation to deal with because "he had the head in his pocket."—*St. Mary's Hospital Gazette* (July) is largely concerned with a fund which is being raised to buy a new athletic ground for the Paddington school in conjunction with Middlesex Hospital, and which is, we understand, prospering well. The chief scientific communication is on the Treatment of Neuralgia and Sciatica, by Dr. Wilfred Harris.—*St. Thomas's Hospital Gazette* (July) contains an account of a dream in heroic couplets and needing local knowledge for its full appreciation.

A HOLIDAY HANDBOOK.

Mr. Walter Hill has issued a useful shilling guide-book entitled, "The Holidays: Where to Stay and What to See," to the districts on the line of route of the Midland, London and North-Western, Great Northern, Great Eastern, Great Western, and Great Central Railway companies, and gives much useful information respecting the various towns served by these companies for the holiday-maker and tourist. There are lists of seaside, farmhouse, and country lodgings, with brief references to the features of interest in their neighbourhoods. The various maps and illustrations with which the text of the book is illustrated enhance its value to those fortunate people who have not yet taken their holidays and are making up their minds where to go for them.

THE FLY NUISANCE.

To the Editor of THE LANCET.

SIR,—I have been somewhat disappointed in the results of the formalin treatment mentioned in your columns a few weeks ago and should like to mention the method I employ in dealing with flies.

I use one of the ordinary dome-shaped fly bottles and the solution employed is simply the liquid paraffin of the Pharmacopœia, which has the advantage of being inodorous and (except to the insect community) non-poisonous. The addition of a few drops of oil of cloves prevents putrefaction of the dead flies and keeps the solution free from any objectionable smell which might otherwise arise. The mixture, however, does not seem to possess any particular attraction for flies; and this might appear at first sight a disadvantage, as it is usually necessary to "first catch your fly" by cautiously lowering the bottle over him. But this is where the sporting instincts are aroused and any hard-worked or impecunious practitioner who finds it impossible to go grouse shooting on the moors can (as I am doing) turn his attention to the smaller game of the tea-table, and thus obtain recreation which has certainly the merit of cheapness to recommend it, and which (like some advertised modes of increasing one's income) can be carried on "without interference of business." On a hot afternoon, with an hour to spare, the "bag" will be most encouraging. Once a fly touches the greasy solution he never gets out again, but slides down into it, and very quickly his career is terminated in what appears to be a comparatively comfortable state of asphyxia.

To be thus suddenly provided with a rapid and comfortable death whilst in the midst of a hearty meal must from the fly's point of view be a decided improvement on the ordinary fate of his fellows.

I am, Sir, yours faithfully,

London, August 10th, 1909. IN TOWN ALL AUGUST.

*** The majority of our correspondents have found the formaldehyde method very efficacious. It might be stated, however, that the addition has been mentioned of a teaspoonful of a sweet wine, e.g., port, or of spirit, e.g., whisky, to the formaldehyde, which appears to increase the attraction of the fluid for flies.—ED. L.

AN EXTRAORDINARY "TYPHOID CARRIER."

IN a recent editorial article in the *Boston Medical and Surgical Journal* "the most remarkable case of a typhoid bacillus carrier on record" was described. The subject was an Irish cook who had been detained two years at the hospital on the North Brother Island by the Health Department. It seemed necessary that she should be quarantined indefinitely as her release would be a menace to the health of the community. Frequent examinations showed that typhoid bacilli were constantly present in her system, and careful studies by Dr. George A. Soper and others seemed to indicate that they were generated in the gall-bladder and thence disseminated. Repeated experiments were made in order to find some method of stopping the development of the bacilli without success. It was seven years since the woman first came under observation. Twenty-six cases of typhoid fever had been traced to her with certainty and the total number of cases to which she had given rise was probably very large. The outbreaks of which she was the cause occurred in suburban well-to-do families in which she was employed as cook. She had never shown any signs of enteric fever.

COMPRESSED-AIR ILLNESS.

NOTWITHSTANDING the experience which has been acquired with reference to the action of compressed air on the human body, accidents continue to be reported from time to time. The *Engineer* of August 6th mentions that during the month of July several men were taken ill while working under a pressure of six atmospheres beneath the river Elbe. They all recovered and returned to work, but one of them, an engineer, again collapsed on subjecting himself to the increased atmospheric pressure, and died soon after being carried out.

A CURIOUS CASE.

To the Editor of THE LANCET.

SIR,—A collier, aged 20 years, was pushing a tub of coal before him where the roof of the pit is very low. A stone projecting from the roof scratched his back, causing some abrasions of the skin with slight bleeding in a few places. The roof of the pit is wet and foul water drops from it. On the fifth day after the accident I saw the case. The skin all along the dorsal vertebræ and horizontally to an extent of about seven inches was covered with inflamed papules. Two days after that these had become pustules and I punctured 30 or 40 of them. As he could not afford to run up a doctor's bill he got an order for admission into the infirmary from the parish medical officer, who glanced at his back and then signed the usual form for admission to the infirmary. That was on the eighth day from the accident. In about three weeks from the date of the accident the collier was practically well. He sued for compensation under the Employers' Liability Act. The medical referee from the company called on him for the first time 16 days after the accident and reported to the colliery company that it was not an accident but a case of acne vulgaris. The case came before the county court judge and the medical referee testified that it was a case of acne and that he must have been suffering from it for some time previously. The parish medical officer who saw him only for a moment or so, when filling the form for admission to the infirmary, on the eighth day of the accident, also testified that the case was one of acne vulgaris, and that he had seen the "typical blackheads." He also stated that acne was caused by dirt, "because these people don't wash themselves." He also stated that he had had five or six acne cases in his own practice among colliers. Judgment was given for the defendant. I may state here that another collier who was close at hand saw the accident and gave evidence as to what happened before the court.

The collier is a healthy man with a beautifully clean skin. There was not a single pimple on head, face, neck, or chest, or anywhere except on the back, and his father says there was not a single pimple on his son's back before the accident. My theory is that it was a case of artificial acne, the irritant being the dirty water acting on the chafed or abraded skin, and the dirty water was kept in contact with his skin by his wet shirt.

Is it correct to say that blackheads are "typical" of acne vulgaris, supposing that these were present and that no mistake has been made here?

I am, Sir, yours faithfully,

August 2nd, 1909. C. O'H.

*** This case does not appear to be a typical case of acne vulgaris from its history. A possible diagnosis is septic folliculitis, if it is not, as our correspondent suggests, an artificial acne. But the data are not sufficient to form grounds for a diagnosis.—ED. L.

DR. BARNARDO'S HOMES.

THE forty-third annual report of Dr. Barnardo's Homes for the year 1908 has just been issued in the form of a 64-page pamphlet with an appropriate coloured wrapper containing a number of pictures illustrative of the work of the institution. The number of orphan and destitute children rescued in 43 years has been 67,634. Last year 2518 children were admitted. The death-rate among the children boarded out in rural districts was 2·75 per 1000, while the death-rate covering all the homes was about 9·24 per 1000. On admission 2·6 per cent. of the children showed signs of tuberculosis and 30 per cent. of the deaths in the homes were due to tuberculosis. It is stated that over 12 per cent. of all cases treated in hospital suffer from tuberculous disease in some form. It should be remembered that a large number of the children who come under the care of the institution belong to the defective or incurable class. A table of zymotic diseases shows that 41 children suffered from scarlet fever with 2 deaths, 120 from measles with 3 deaths, 54 from German measles with no deaths, 60 from whooping-cough with 2 deaths, 11 from diphtheria with 4 deaths, 4 from enteric fever with 1 death, 54 from chicken-pox with no deaths, 34 from mumps with no deaths, making a total of 378 cases with 12 deaths. Copies of the report can be obtained, post free for six stamps, on application to the headquarters of the Homes, 18 to 26, Stepney-causeway, London, E.

Old School.—We agree with our correspondent in some of his strictures on the letter sent out by a candidate for a vacant medical post, but that letter is by no means a particularly bad specimen of its class. We think that the method adopted of forbidding all canvassing and of limiting the number of testimonials to three or so should be more regularly adopted.

Library.—We could not give an estimate of the value of the book without seeing its condition and title-page, but such seventeenth-century tracts are not, as a rule, worth more than a few shillings. If our correspondent refers to recent numbers of "Book Prices Current" he may see the work in question quoted if it has a saleable value.

Enamel.—According to our analysis, the preparation is quite innocuous, consisting of shellac, wax, and plaster-of-Paris. It contains no poisonous metal.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations.

TUESDAY.—12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations. Diseases of the Skin. 5 P.M., Lecture:—Dr. G. Stewart: Syphilitic Diseases of the Nervous System.

WEDNESDAY.—10 A.M., Diseases of Children. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. B. Harman: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. B. Harman: Squint.

FRIDAY.—10 A.M., Lecture;—Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays 2.30 P.M., Operations. Diseases of the Skin.

SATURDAY.—10 A.M., Diseases of Children. Mr. B. Harman: Diseases of the Eyes. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (25th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (26th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (28th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

The Index to Vol. I. of 1909, which was completed with the issue of June 26th, and the Title-page to the volume, were given in THE LANCET of July 3rd.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1909 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 19th, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 13	30·11	W.	...	128	82	64	62	69	Fine
,, 14	30·19	W.	...	124	80	62	64	69	Cloudy
,, 15	30·14	S.	...	129	85	61	63	70	Fine
,, 16	29·76	S.W.	...	102	78	67	66	71	Cloudy
,, 17	29·75	S.W.	0·01	118	72	57	57	61	Fine
,, 18	29·43	S.W.	0·39	116	70	57	60	64	Cloudy
,, 19	30·01	W.	0·03	114	74	58	60	64	Cloudy

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